

5153

THE MINING CONGRESS JOURNAL

VOL. I

SAFETY—EFFICIENCY—CONSERVATION

No. 1

OUR MISSION

TO reduce, so far as is humanly possible, the number of killed and injured in mining operations;—to provide for the widows and orphans created by unavoidable accidents through a system of workmen's compensation, fair alike to the employer and the beneficiary; to conserve, so far as is economically possible, the present annual waste of two hundred million tons of coal; to stimulate the production of gold in order that the parity between basic and credit money may be kept at such ratio as will insure stability without restricting our circulating medium; to create conditions under which the supply of commercial minerals may meet every demand of commerce and industry; to maintain a high scale of wages, create the best possible conditions for the workman, leave a fair profit to the operator, the lowest consistent price to the consumer,—and above all, to foster a perfect co-operation between all classes interested in the mining industry. The American Mining Congress solicits the support and co-operation of all who approve these purposes.

JANUARY, 1915

PUBLISHED BY
THE AMERICAN MINING CONGRESS
PUBLICATION OFFICE

MUNSEY BUILDING

WASHINGTON, D. C.

\$ 2.00 PER YEAR

20 ¢ PER COPY

The Mining Congress Family

Those who in different lines of enterprise are
directly or indirectly interested in the
prosperity of the mining industry.

Those who mine.

Those who use mine products.

Those who transport the production of the
mines.

Those who furnish the machinery and supplies
used in these operations.

All have a mutual interest and each can serve
himself by serving the others.

All are interested in the highest development
of the mining industry.

All are interested in the efforts of the American
Mining Congress to better its conditions;
each can help himself indirectly by helping
the others.

Will you join the Mining Congress family,
each member of which is, so far as not to
conflict with good business judgment, help-
ing those who are helping the business upon
which you depend? Why not?

The American Mining Congress

Majestic Building, Denver, Colorado

Munsey Building, Washington, D. C.

THE MINING CONGRESS JOURNAL

JANUARY

CONTENTS

1915

ANNOUNCEMENT	3
THE COAL MINING INDUSTRY AND THE AMERICAN MINING CONGRESS	3
GOLD MINING AS AN INVESTMENT	5
THE DANBURY HATTERS CASE	5
EASTERN OHIO SITUATION	6
BILLS IN CONGRESS	7
MINERAL PRODUCTION COMPARISON	7
PRESIDENT WILSON COMMENDS MINING CONGRESS	8
VIEWS OF OUR DIRECTORS ABOUT THE MINING CONGRESS JOURNAL. (Illustrated)	9
DECREASE IN OHIO COAL MINING	12
CALIFORNIA MINES BEST YEAR SINCE '64	12
ARIZONA'S CHAPTER	13
SAFETY FIRST. (Illustrated)	15
THE ROAD TO ATTAINMENT	21
WASHINGTON MINE STUDY COURSES	21
ALBERTA AIDS MINERS	21
THE ILLINOIS AND INDIANA COAL SITUATION. (With Drawings and Comparative Tables)	22
U. S. OUTPUT OF IRON ORE FALLS OFF	33
MINE TAXATION.—AMERICAN MINING CONGRESS COMMITTEE REPORT	34
DECREASED U. S. COPPER PRODUCTION IN 1914	38
EXCERPTS FROM PRESIDENT SCHOLZ' ANNUAL ADDRESS	39
SHORTAGE IN COAL PRODUCTION	42
METALLURGICAL RESEARCH AND MINE SAFETY STATIONS	43
EXCERPTS FROM ANNUAL REPORT OF DIRECTOR OF BUREAU OF MINES	47
ARIZONA'S ALIEN LAW UNCONSTITUTIONAL	48
LATIN AMERICA AS AN EXPORT MARKET FOR COAL, By ALFRED THOMAS MARKS	49
WEST VIRGINIA'S MINING POPULATION	52
RETIRING GOVERNOR TENER'S MESSAGE. (Conservation, Workmen's Compensation, State Constabulary)	53
PENNSYLVANIA'S MINERAL PRODUCTION	54
RECENT LEGISLATION AFFECTING THE ARIZONA MINING INDUSTRY, Address by WALTER DOUGLAS, Bisbee, Arizona	55
THE FIRST MOVE, Excerpts from Address by W. G. SWART, of Denver, Col	58
THE PROPER ADVERTISING OF MINING OPPORTUNITIES, Excerpts from Address by Dr. JAMES TALMAGE, Salt Lake City, Utah	60
LARGE SILVER PRODUCTION	62
GOLD PRODUCTION IN 1914	63
FEDERAL ACCIDENT COMPENSATION	64



CARL SCHOLZ
President American Mining Congress

THE MINING CONGRESS JOURNAL

PUBLISHED MONTHLY BY THE AMERICAN MINING CONGRESS
MUNSEY BUILDING, WASHINGTON, D. C.

OFFICERS

CARL SCHOLZ, President
HARRY L. DAY, First Vice President
M. S. KEMMERER, Second Vice President
GEORGE H. DERN, Third Vice President
J. F. CALLBREATH, Secretary

EXECUTIVE COMMITTEE

CARL SCHOLZ CHARLES S. KEITH
WALTER DOUGLAS

DIRECTORS

D. W. BRUNTON, Denver, Colo.
M. S. KEMMERER, New York
E. A. MONTGOMERY, Los Angeles, Calif.
W. J. RICHARDS, Pottsville, Pa.
GEORGE H. DERN, Salt Lake City, Utah
FALCON JOSLIN, Fairbanks, Alaska
SAMUEL A. TAYLOR, Pittsburgh, Pa.
L. A. FRIEDMAN, Lovelocks, Nevada
CARL SCHOLZ, Chicago, Ill.
HARRY L. DAY, Wallace, Idaho
CHARLES S. KEITH, Kansas City, Mo.
WALTER DOUGLAS, Bisbee, Arizona

ANNOUNCEMENT

As a means through which to further its work looking to safety, efficiency and conservation, the *American Mining Congress* presents to you the first issue of *THE MINING CONGRESS JOURNAL*.

Its purpose will be to keep our members better informed concerning legislative matters, both at the National Capital and in the various state legislatures; to carry information concerning important legal decisions and administrative rulings of interest to the mining industry; to carry discussion of the economics of mining and to demonstrate the real relation which exists between mining, agriculture, manufacturing, transportation and commerce. Its pages will be devoted to the economic, administrative and commercial, rather than to the technical phases of the mining business. It will devote itself especially to what may be termed, "Mining Politics," to the creation of those conditions under which both the professional and practical mining man may operate to best advantage. It will urge a better cooperation on the part of the Federal Government with the mining industry, but will always stand against any governmental interference or competition with private enterprise. It

will stand for the highest individualism, believing that the fullest development of human character should always take precedence. Mining is a natural business. Waste in mineral production places a burden upon every individual in the nation. *THE MINING CONGRESS JOURNAL*, as the mouthpiece of the nation's organized effort in behalf of mining, will stand against economic waste of the natural resources and of the productive forces which make them available for the market. It will call particular public attention to the greater necessity of conserving those resources which once exhausted can never be reproduced. And it will urge special attention to the greater importance of conserving those natural resources which are so located as to be available to the centers of population, as against similar resources so remotely located that their transportation to the region of demand would make their use economically impossible. The accomplishment of these ends can only result from a great cooperative movement, in which all those who are interested shall form a part. *THE MINING CONGRESS JOURNAL* offers its service as a special means through which this broad cooperation may be made effective. We

solicit from our readers concise statements for publication, and will welcome any suggestion through which the JOURNAL may be made of greater use in bringing about that perfect cooperation which makes for the highest development of national character.

THE COAL MINING INDUSTRY AND THE AMERICAN MINING CONGRESS

The coal-mining industry is primary to all the activities of mankind and essential to its comfort. Without coal, railroad, steamship lines and manufacturing would be impossible. Why is it then, that this primary industry is so constantly in a depressed and insolvent condition? It is not because there is a dearth of demand for the output of the mines; but is due to the suspicion, distrusts, doubt and lack of effort on the part of the leading men engaged in this industry to try to bring about economic adjustments. These men are possessed of high intelligence, are broad-minded in civic and other matters, but many of them seem to be afraid to act with a national association, the chief and only purpose of which is correction through association and cooperation, of those economic questions which have brought the coal mining industry to a state of distress that imperils the solvency of all who are engaged in it.

The coal mine operators of the United States are confronted by a situation that, statistically, shows that they are, as a whole, insolvent. Thirteen of the States show, according to the census report for 1909, that the amount of money received for the coal put out was not equivalent to the amount expended for putting it outside of the mines. It is also shown that in those States where the industry is considered by the public to be the most prosperous the return on the capital invested has been but a fraction over three per cent. Shall this industry, the product of which is so vitally essential to the industry, and commerce and transportation of the country and as well of the comfort of the inhabitants, with the great risks which are inherent in coal mining be less remunerative than if the

capital invested in it were deposited in a savings bank?

How shall this economic condition be corrected. Certainly it will not be done by individual effort, and effective cooperation seems to offer the only means of correction. The American Mining Congress has been recognized by a considerable number of coal operators as an organization best meeting the requirement of a capable staff of officers, having a recognized standing among legislators, an accumulation of information that it would require years for any other organization to acquire and a connection with other branches of the mining industry which makes of it a national organization. All these factors are essential to achievement of desirable results for the mining industry, whether it be of coal or metal mining.

The mining industry is, in a sense, a unit. It has, with but slight variations, like problems to solve, like conditions to conform to. It is subjected to like economic crises and difficulties. It should be organized as a unit, with sections of its members that will line themselves up on divisions that naturally divide themselves according to the nature of the particular work in which its members are engaged. This should be gold, silver, copper, lead, zinc, tin, clay and coal mining; but all these several units should get together once or more a year for the purpose of considering and discussing and agreeing upon such matters as are particular to all yet peculiar to each of the sections. The association of the whole body would lend aid and support to the efforts of any one section in State or National legislation.

Another question. Why have these men not been associated heretofore? It is sad to say it, but it is the truth, that it is because of a fear that under the Sherman law they would be liable to fine or imprisonment, or both, for associating themselves together for the correction of economic evils from which all suffer.

What is the fact? In a recent decision of the United States Supreme Court, in the National Watch Company case, it is declared that, under the "rule of reason" formerly announced by the court,

the purpose and intent of the Sherman anti-trust law is to prohibit those acts and actions through association that are inimicable to the public welfare and that it is not the purpose, nor intent, of the law to prohibit associations of men engaged in a similar industry for the purpose of correcting economic evils from which they may suffer nor to prohibit association for the purpose of advancing the particular industry in which they may be mutually engaged.

This is a recent decision, but it points the way, promises immunity from penalties and threats of punishments, offers encouragement and dissipates fear of penalties for mutual association for industrial welfare so long as that welfare is sought for by association and cooperation, and that does not infringe upon the lawful rights of the public to obtain those necessities which it is the business and purpose of producers to provide at a fair price.

Think this over; but think it over with a view to the fact that the American Mining Congress is an organization already formed, that it has perfected machinery now ready to serve, that it is willing to serve promptly and that its only requirement is that you shall become a member and thereby help, through cooperation, to achieve what it may undertake. It is not perfect; nothing of human make is perfect except the multiplication table—but whatever faults it may have can be corrected, and will be corrected, if you and all others who earnestly desire a real and permanent correction of coal-trade evils will join your efforts with those who are already members and cooperate to bring about those conditions from which all will profit and none will suffer.

GOLD MINING AS AN INVESTMENT

The recent bonanza strike in the Cresson Mine at Cripple Creek, Colo., has again called public attention to the great possibilities of mining. Other bonanza strikes have recently been made in other sections of the Rocky Mountain West and if these discoveries shall develop as they now seem to give ample

promise, another era of speculative mining will undoubtedly result. If the investments thus induced shall be directed into proper and safe channels, the result will be of untold benefit. If, upon the other hand, these investments shall not be intelligently made, the results will not be at all commensurate, and in many instances the mining industry will be damaged.

Intelligent, persistent, development work has seldom failed to produce results. A phenomenal gold discovery has usually been followed by a reign of speculative mining and disaster to the investors, followed by a period of depression which has closed all but the high-grade and the well-developed mines, and has prevented legitimate mining prospects from securing sufficient capital for necessary development work.

While the gold production of the West has fallen off during recent years (the slight increase of 1914 production over that of 1913, furnishing a very gratifying exception), it will be noticed that the greater part of this production has come from a few high-grade camps, and that in the smaller low-grade camps there has been a marked decrease.

A given production from a low-grade camp is very much more to the advantage of the locality than the production from a high-grade mine, because of the fact that so large a percentage of the total output is spent in the community for wages and supplies and machinery. The value of gold production as a basis for monetary credit is the same to the country at large, whether produced from high or low grade ores, but the value to the community of a million dollars in production from a mine where three-quarters of a million is spent for labor and supplies is very much greater than from a high-grade mine from which but one-quarter of a million is spent in production costs. Not only this, but the low-grade mine is more likely to be continuous in its operation and in consequence furnish the basis of more staple and continuous prosperity. The high-grade mines will take care of themselves. They can operate in spite of ore thieves, unjust labor conditions, legislative restrictions or extortionate taxes.

They can even continue operation after being robbed by thieving promoters. Any one of these hindrances is likely to prove fatal to the operation of the low-grade mine. If the West is to prosper as it should, and as the industrial life of the nation demands that it should, it must see to it that the laws which control mining operations are fair to the operator and that the outside investor in mining stocks shall be guaranteed that his money be honestly and intelligently spent in development work. How can this be accomplished? No single answer can be given to this question. The continued vigilance of all the people interested will be necessary to accomplish this result. Every state must have its organization ready to give honest and intelligent information about any proposed mining enterprise. Eastern investors should be given an opportunity to see the pitfalls in mining without learning by bitter experience.

THE DANBURY HATTERS' CASE

The decision of the court of last resort sustaining the award of damages in the now celebrated Danbury Hatters' case may be expected to have a wide-spread influence among employers and labor unionists as well.

One probable result of this decision by the United States Supreme Court, which fastens monetary responsibility and liability on those who lead as well as those who follow leaders in carrying on coercive campaigns with violence, is a necessity for the incorporation of labor union organizations as a means of limiting the liability of members. Otherwise members who own or expect to own property will be inclined to withdraw from such organizations.

Some years ago a labor union man in Pittsburgh transferred his home to a son in order to forestall what he believed would be a foreclosure on a judgment awarded to an employer against it—although this was never for a moment contemplated—and was driven out of his own home and died in poverty as a result, the son keeping the home because it had been deeded to him for "one dollar and other valuable considerations." This man

was John Phillips, a one time prominent window-glass blower and an enthusiastic Knight of Labor worker. The employers were Brace Bros., laundrymen, who secured the first judgment ever granted against labor and strike leaders in this country. Judge Jacob F. Slagle, of the Allegheny county court of common pleas, rendered the decree after one of the most learned and precedent-making decisions ever rendered, a decision which has been cited in every case that has since come up on like statements of fact.

Dean W. R. Crane, of the School of Mines, State College, recently delivered an address on the coal business of Pennsylvania in which he said that the day is not as far away as many believe when Pennsylvanians will have to pay such a price for their coal that many will not be able to buy it at all.

"The easily mined coal," said Dean Crane, "is being rapidly exhausted. After this is all taken out the less pure and the thinner seams, lying far beneath the surface, will be worked at such a cost that the price must be doubled, and perhaps trebled. With the increase of cost there must be an increase of price."

Dean Crane quoted statistics showing that one-half of the coal output of the country is produced in Pennsylvania, and that this has been so long the case that the amount yet to be mined has declined much more rapidly than in other States that have since been developed.

THE EASTERN OHIO SITUATION

From a state of "watchful waiting" there are portents that there is to be a muss in Eastern Ohio between the operators and miners. Since last April the miners of this district, which in 1913 produced close to 15,000,000 tons of coal, have been on strike, the strike developing out of that semi-liquid state called "suspension" at the expiration of a wage scale agreement.

The operators of this district have for many years been among the warmest friends of the miners' union, but they now feel that it is absolutely necessary to attempt to utilize their properties. The

companies that operate in this district all own large acreage, some of them as much as 35,000 acres and few of them less than 10,000. These properties have been idle for almost a year and the operators insist that they cannot pay more than 44.46 cents per ton for the digging of the coal. The miners have insisted upon 47 cents the ton for run of mine coal. This demand is predicated on the language of what is known as the Green anti-screen law. This law was introduced in the State legislature by William Green, for a number of years an officer of the miners' union in Ohio, and now secretary-treasurer of the United Mine Workers of America.

Some of the operating companies have arranged for coal acreage in Logan county, West Virginia, and will begin development there, allowing their acreage in Ohio to lie fallow until such time as it can be disposed of or the miners are willing to recognize that capital must have wages as well as labor. One of these companies is the Purselglove-Maher, and another that has been negotiating for a large acreage in the same county across the river is the Lorain Coal and Dock Co., which is the largest owner of acreage in the Eastern Ohio district. Both are heavy lake shippers, and have been obliged to buy coal for the 1914 lake shipping season to meet their contractual obligations and to take care of demands for their own docks in the northwest.

Now it is tentatively proposed to undertake to operate their Ohio mines on the open-shop method; that is, they will offer to the miners who are willing to work union regulation treatment, making no distinction as between members and nonmembers of the union, and will pay them for all coal that passes over a 1½ inch screen, and also for all coal that passes through such screen, the amount so to be paid to be the exact equivalent of the amount paid in the Pittsburgh district, with which they come closest into competition in the lake and general markets.

This question promises to be one that

will develop considerable interest in the forthcoming convention of the miners at Indianapolis.

BILLS IN CONGRESS

There are now before Congress numerous bills which would be of vital interest to mining, but the remoteness of their serious consideration renders unnecessary any extended reference.

The contest in the Senate over the administration ship purchase bill seems likely to prevent the consideration of even the appropriation bills, the failure to adopt which will make necessary the calling of an extra session. Under these conditions there is small reason to fear the enactment of bad, or to hope for the enactment of good, bills during the present session of Congress.

MINERAL PRODUCTION COMPARISONS

The Geological Survey statistics for mineral production for the year 1913 in the United States compared with the figures for 1912 show some interesting comparisons.

Among the states showing the largest increases are the following:

Pennsylvania	\$60,667,106
Oklahoma	26,554,690
West Virginia	19,792,821
Minnesota	19,141,804
Ohio	10,461,005
Texas	8,869,895
Illinois	8,756,354
California	7,572,220

Michigan suffered from a big strike during 1913 and registered a decreased production of \$7,919,275. Missouri shows a decrease of \$4,313,462. Among the other states showing decreases are:

Colorado	\$3,873,118
Alaska	3,096,734
Montana	2,313,817
Wisconsin	1,739,837
Nevada	1,269,744
South Dakota	547,829

PRESIDENT WILSON COMMENDS MINING CONGRESS

LETTER FROM NATION'S CHIEF EXECUTIVE READ AT ANNUAL CONVENTION IN PHOENIX—CREDITS ORGANIZATION WITH NOTABLE ACCOMPLISHMENTS

The following letter from President Wilson to the members of the American Mining Congress was read at the annual convention of that body held in Phoenix, Ariz., December 7-11, 1914. The President pays tribute to the work of the Mining Congress and its part in advancing the interests of the mining industry generally and deals with some of the problems connected with mines and mining. The letter follows:

To the Members of the American Mining Congress:

I regret exceedingly that, owing to the press of circumstances, it will be impossible for me to greet you in person at the seventeenth annual session of the American Mining Congress at Phoenix, Arizona.

I am well aware of the important part played by your great organization in the creation of our Bureau of Mines and am sure that the good work of that bureau in attempting better to safeguard the lives of the two million men employed in the hazardous mining and metallurgical industries will continue to redound to your credit, as well as to the credit of the bureau itself.

It will always be a tribute to your foresight and energy that this new Federal organization in the short period of its existence, with the kindly cooperation of state and their agencies, has been able by persistent and intelligent effort to turn an isolated local movement for greater safety into a great national movement for "Safety First" and has already gone beyond the mining industry of the country. I venture to say that thousands of lives have been saved by that

movement and that many thousands more will be saved in the future.

Gratifying as the results of this life-saving campaign may have been, however, there is still vigorous work for your congress to do. I am informed that, during the last year, more than three thousand men were killed and one hundred thousand injured in the mining and metallurgical industries of the country. At the same time, those in authority tell me that, from their observation and experience one half of such deaths and three-fourths of such injuries may be regarded as easily preventable.

I suggest this situation as an opportunity for further endeavor on your part to cut down this excessive toll of death and injury. I can assure you of the fullest cooperation of all the proper governmental agencies also of my earnest desire for your active and continued assistance.

There is one other problem connected with the mining industry in which the Federal Government is vitally interested and that is proper conservation and proper use of the mineral resources of the nation. I realize that, you too, are interested in this problem and I wish merely to call it to your attention because of its fundamental importance to the present and future prosperity of the nation, I am happy to say that the profligacy of the past in the use of these resources is not being continued, on so large a scale. There is, however, great opportunity for further reform along these lines and in this your organization can be of invaluable service.

Sincerely yours,

Woodrow Wilson.

VIEWS OF OUR DIRECTORS ABOUT THE MINING CONGRESS JOURNAL

PRESIDENT CARL SCHOLZ

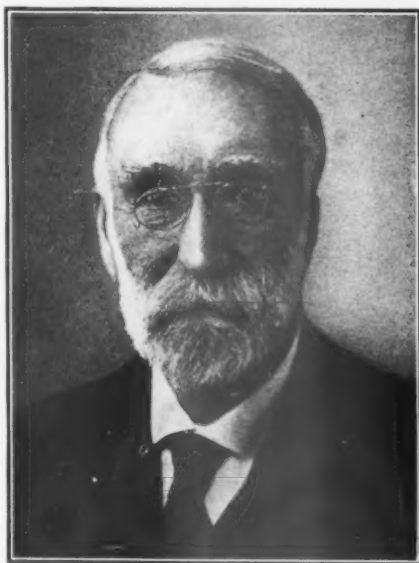
The officers and directors of The American Mining Congress deem it very necessary to place before our membership regularly all matters of importance to the mining industry in order to obtain the cooperation and assistance of the membership in the administration of its affairs. It is quite a task, and also a great responsibility, for your officers and directors to proceed with matters of so much importance without some expression on the part of our members, and in order to obtain the views of the members it has been decided to publish the *MINING CONGRESS JOURNAL*, which will be sent to the members so that each man may know of the matters which are under consideration and make comments on the proposed action or direct the officers as to what, in his opinion, should be done.

With a membership so widely scattered and interests so greatly diversified, it would be unreasonable to expect that the views of all members have been met, and it is believed that through this monthly publication more frequent expressions from the membership will be obtained and their interests will be more efficiently served.

Trade papers have certain reasons for their existence and most of them serve special lines—some are of interest to the operating official; others treat more particularly the commercial, and still others the financial end; some are intended for coal, others for metal mining. The *MINING CONGRESS JOURNAL* is not to take the place of any of these trade papers, and will be confined to the publication and review of proposed legislation, legal decisions, and administrative rulings of interest to mining men, and a general survey of the Mining Congress work. It does not cater to or represent any section or set of men; it stands for justice

and fairness to the mining industry at the hands of the National and State Governments. Its aim and purpose is by cooperative work to improve mining conditions, and to place the industry in its deserved position.

The earnest support of our members is cordially solicited.



DR. JAMES DOUGLAS

DR. JAMES DOUGLAS, NEW YORK

I think the decision will prove to be of incalculable value to issue at stated periods a journal which will advise the mining interests throughout the country of legislation actually effected, or of legislation proposed and still open to discussion. It is so much better to excite discussion on pending legislation than to have to bear the brunt of mistakes made by hasty action. While the *MINING CONGRESS JOURNAL* should be scrupulous in analyzing all statements made in it, it is clear that

men actually engaged in mining and metallurgy are more competent than untechnical laymen to foresee the effects of a good deal of the injudicious and unnecessary enactments effecting mining which are instigated by altruistic motives or purely class interests.

I believe in Arizona the idea of the JOURNAL as a medium for the discussion of such subjects has been hailed with the greatest enthusiasm, and I hope that the same will be true of every one of the local chapters.



GEORGE H. DERN

DIRECTOR GEORGE H. DERN, SALT LAKE CITY, UTAH

The MINING CONGRESS JOURNAL ought to prove a valuable publication, in several respects.

There are many men engaged in the mining industry who are vaguely conscious that there is something wrong with the business. They feel that something needs fixing, but they do not know just where the trouble is. The JOURNAL will help them analyze the situation, and show them what is the matter.

There are many others who are vi-

vidly aware of certain evils and abuses, but they do not know what to do about it. The JOURNAL will show them the remedies, with instructions for use.

There is a third class of people, including manufacturers, merchants, bankers and other business men, whose prosperity is tied up with that of the mines. These people, who are thus indirectly interested in mining, need to be educated as to the problems of that industry, and they should be made to see that what helps or hurts mining will help or hurt them. The JOURNAL should have a wide circulation among this class, and by conducting a campaign of education among them, enlist the active support of their influence.

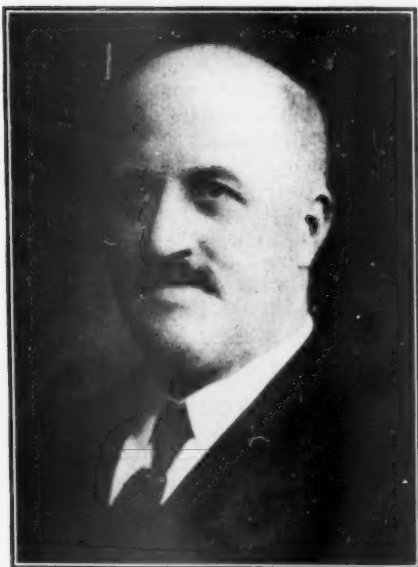
When I say the JOURNAL will do these things I really mean that the American Mining Congress will do them, through the medium of this JOURNAL as its official organ.

A pressing need is to convince all those who are directly or indirectly interested in mining that the American Mining Congress is playing an important part, and is serving its constituency well. One only needs to come into close contact with the actual work of the organization to appreciate that it has developed a strong influence, and is performing a service of high value.

The Congress needs and deserves a greater measure of support than it has so far received. Doubtless it will get that support when the people whom it serves become educated as to its objects and results. Such an education can best be brought about by means of a monthly publication such as the one now being started.

DIRECTOR SAMUEL A. TAYLOR, PITTSBURGH, PA.

I think there will be a great field of usefulness for a Mining Congress journal specially devoted to the dissemination of information pertaining to legislative action and judicial or other decisions on matters in connection with mining. In carrying out the



SAMUEL A. TAYLOR

foregoing suggestions I believe the journal should be published, as it would likely be, in Washington, D. C., for by so doing a closer and more intimate relation to the legislation and the decisions would be secured. At the same time by publishing in the journal the thought of the men prominent in the mining world and considered authority on the subjects they would discuss, and the bringing of the information, thus secured, to the attention of legislators and others interested would wield a greater power than at any other location.

Moreover the JOURNAL being, as it will be, the spokesman of the American Mining Congress, should have a great influence in shaping proper legislation, for its statements should pass as having the same unselfish desire as the Congress itself to further and advance the best interests of the entire mining industry.

The time is opportune for the launching of such a journal; the questions of safety, efficiency, welfare and conservation, of both men and property, are questions which are now fore-

ing themselves upon the attention of legislators and the mining industry in such a way that a journal of such an unbiased nature as would be published by the American Mining Congress should redound to much good in the proper solution of these problems.

In conclusion I wish to say I believe the project a very timely and worthy one and that it should receive the support of all those interested in mining, whether members of the American Mining Congress or not.

DIRECTOR E. A. MONTGOMERY, LOS ANGELES, CALIF.

I believe through the publication of a monthly bulletin by the Mining Congress the policy you have outlined may be effectively carried out.



E. A. MONTGOMERY

To develop a more friendly spirit and mutual confidence between the employer and employe would result in material benefits to both, particularly so to the working class. Therefore, in my opinion, this can only be done by the general acceptance of open shop rule.

It has been my experience to successfully carry out this policy where labor organizations were quite determined to exercise the limit of their power. I believe in maintaining a high scale of wages and reserving for the employer the right at all times to increase the wages of any employee deserving such reward.

Such a policy advocated by the Mining Congress would be, in my opinion, generally approved of, and, if adopted by organized labor, would prove of great benefit to the intelligent wage-earner. The policy of the Mining Congress in other matters I quite approve of, and believe through the publication of a monthly bulletin, the good work of the Congress may be materially increased.

DECREASE IN OHIO COAL MINING

Twenty million tons is the Geological Survey's estimate by E. W. Parker, coal statistician, for the coal production of Ohio during 1914. On April 1 all the coal miners in Ohio went on strike over the wage scale, the matter in dispute being whether wages should be paid on a mine-run basis, as provided by recent legislation. The law has been bitterly opposed by the coal operators, and while during the first three months of the year the coal production of the state was ten per cent greater than the production for the corresponding months in 1913, practically all of the Ohio mines were idle from April to July. The Hocking Valley district then resumed operations, and in August the Cambridge district also resumed. In what is known as the No. 8 district (mines operating in the Pittsburgh No. 8 coal) the mines were still idle at the end of the year. The wisdom of the mine-run legislation may well be

questioned, particularly in states where the markets require screened coal, as is largely the case in Ohio. However that may be, the labor struggles combined with the other unsatisfactory conditions have caused a decrease in the output of Ohio mines in 1914, compared with 1913, of about forty per cent, a larger decrease than is reported by any other coal-mining state. The production for 1914 will not be much if any more than 20,000,000 tons, whereas in 1913 it amounted to 36,200,527 short tons.

CALIFORNIA MINES' BEST YEAR SINCE '64

California shows the largest output of gold in thirty-one years for the fiscal year ending June 30, 1914, according to the figures of the United States Geological Survey. All the metals, except zinc, show an increased yield, although the ore treated was less in quantity and fewer mines by 245 reported a production than in the preceding year. The value of the output of recoverable gold, silver, copper, lead and zinc was \$26,812,489, an increase of \$428,543 over the 1912-13 production. The total increase in gold production was \$693,480, of which \$502,966 came from the deep mines. The total recoverable value of gold from California mines was \$20,406,958, of which, \$11,570,781 or 56.7 per cent came from deep mines. The value of recoverable silver amounted to \$832,553.

The total production of quicksilver in California during 1914 was approximately 13,000 flasks, valued at \$700,000. California's output of borax exceeded \$1,000,000, natural gas over \$1,000,000, and silver, tungsten, salt, pyrites, clay and limestone, close to \$500,000 each. The production of copper for 1914 is estimated at 26,000,000 pounds, valued at possibly \$3,500,000.

ARIZONA'S CHAPTER

LIVE-WIRE ORGANIZATION EFFECTED AT PHOENIX—OFFICERS ELECTED—CAMPAIGN MAPPED OUT—WORK BEGUN

Enthusiasm is the keynote of the newly organized Arizona State Chapter of the American Mining Congress—enthusiasm and a red-hot zeal for real results. The Newest State has a chapter that promises to set the pace for all the other chapters of the United States.

The Arizona Chapter is the outcome of the seventeenth annual convention of the American Mining Congress, held at Phoenix the week of December 7, 1914. At this meeting it was brought forcibly to the attention of the delegates present that while Arizona was one of the most fortunate states, in so far as her mineral resources were concerned, she was lagging far behind in actual development, and this not only applied to her mineral resources, but also to all other natural resources with which she is so peculiarly blessed.

It was realized that to most effectively remedy these conditions it was necessary to have a strong organization whose principal efforts should be devoted to disseminating accurate information regarding the vast resources of the State, and creating such conditions as would invite the development of same. The result is shown in the organization of this Chapter.

At this meeting Mayor George U. Young, of Phoenix, was chosen temporary chairman and E. L. Wolcott, the assistant secretary of the American Mining Congress, was made temporary secretary.

The following officers were elected:

Governor—W. B. Twitchell, Phoenix; first lieutenant governor, Frank M. Murphy, Prescott; second lieutenant governor, C. A. Grimes, of Kingman; third lieutenant governor, W. B. Gohring; treasurer, H. J. McClung, Phoenix. Directors: J. P. Hodgson, Bisbee; Norman Carmichael, Clifton; A. J. Pickrell, Prescott; T. M. Riordan, Flagstaff; O. D. M. Gaddis, Kingman; Harry Clark, Winslow; L. S. Cates, Ray; B. B. Gottsberger, Miami; Lorenzo Hubbell, Gan-

do; Al Bernard, Tucson; Con. O'Keefe, Nogales; J. C. Goodwin, Tempe; A. S. Kimball, Thatcher; D. A. Burke, Bouse.

Governor Twitchell, on taking the chair, following an ovation which testified to the esteem in which he is held, said in part:

The pay day of the mines is the only real pay day we have here in Arizona. Without the mines this state would amount to little, for it is the mines that afford us a market for the products of our farms. And at a time when the farmer's money is going out of the state the miner's money is coming in. Here in Arizona we have devoted altogether too little attention to the mines. We have not realized their importance, and perhaps this is the fault of the mining men. This chapter of the American Mining Congress can be made a tremendous factor for good. It is going to gain for the mines the recognition they deserve and need.

The chapter will wield a big influence in this great mining state. It will stir up an interest in organized effort, not possible to be stirred up in any other way.

At the first regular business session of the directors, held December 21, the following committees were named:

Executive: L. S. Cates, H. J. McClung and A. J. Pickrell. Legislative: W. B. Gohring, A. T. Thompson, P. G. Becket, J. S. Douglas, W. L. Clark, C. A. Grimes, H. P. DeMund, Epes Randolph, G. H. Dowell, R. N. Fredericks and W. H. McBride. Finance: Walter Douglas, William Gohring and Norman Carmichael. Taxation: B. Britton Gottsberger, Norman Carmichael, G. H. Dowell, W. L. Clark and L. S. Cates.

The finance committee met on the following morning and outlined plans for increasing the membership. It is the hope of the committee to bring the membership of the chapter up to 2,000 during the present year and to have as members every man in Arizona interested in any way in mining. J. H. Robinson, of Prescott, has been chosen permanent secretary of the chapter, headquarters established in Phoenix, a force of clerks being already at work under the super-

vision of E. L. Wolcott, assistant secretary of the American Mining Congress. It is planned to organize locals or sections throughout the State. An annual convention of the chapter will be held in Phoenix on the first Monday in December each year.

The dues of the chapter are \$3 a year. Membership in the American Mining Congress is requisite to membership in the Arizona chapter. The annual dues of regular membership are \$10 a year and of associate membership \$2. Although associate members cannot vote for officers of the national organization, they will have the same standing in the state chapter as regular members.

Great care has been taken that the organization does not take the shape of a political machine, to be charged with scheming to obtain some advantage for the mining industry without proper regard being paid to all other industries including every form and kind of enterprise that goes to make up healthy prosperous conditions in our state. The chapter will have but one object in view—the upbuilding and development of the vast and unlimited resources of our state—and in this connection it will be one of the principal duties of the secretary to get before the board of directors statistical information as the same relates to each and every district in the state showing as accurately as possible, mineral, agricultural and commercial interests in the respective districts with suggestions and recommendations looking to their betterment, all of which will be supported by a painstaking, conscientious board of directors insuring results such as to reflect great credit upon all concerned and redound to the benefit of each and every citizen in our State. Following their broad lines the chapter will soon have in its possession such statistics and other data as will make it possible for the board of directors of the Arizona Chapter of the American Mining Congress to formulate lines of procedure cooperating with and assisting at all times the various elements in the different communities having a desire to work for the common good of all.

The Arizona Chapter of the American Mining Congress doubtless can and

should bring to bear, effective influence in every way legitimate, that will get the much desired results and bring to Arizona a degree of prosperity unparalleled. It is to be hoped that sincere co-operation from those who have a loyal interest in the welfare of our State can be relied upon. There is no one in the State more deeply concerned and who should more willingly give part of his time and cooperation to this beneficial undertaking than the wage earner. Healthy, substantial and permanent payrolls are what we must have if we want to prosper and we cannot have them at the present time without the assistance of outside capital, which we cannot hope to obtain if not treated fairly. If the citizens of Arizona, those interested in the welfare of the State, so desire, they can, through the Arizona Chapter of the American Mining Congress, create an organization through which most, if not all, of the disastrous, hurtful influences from which the state has suffered in the past, can be removed.

AN EMPIRE IN ITSELF

The area of California, 158,297 square miles, is approximately equal to the combined area of Roumania, Bulgaria, Serbia, Albania, Montenegro, Belgium, and Turkey in Europe.

The population of California, according to the latest census, was 2,377,000, as against 28,532,000 for the European countries named.

Of California's total area, it is of interest to note that seventy per cent has already been topographically mapped by the United States Geological Survey.

NEW MINE RESCUE STATION

Jellico, Tenn., is to have a mine rescue station. The Secretary of the Treasury has awarded the contract for its construction to W. H. Fissell & Co., of New York city, the accepted bid being \$63,181. The station is to be in the federal building in Jellico and a complete outfit for the rescue of entombed miners will be installed.

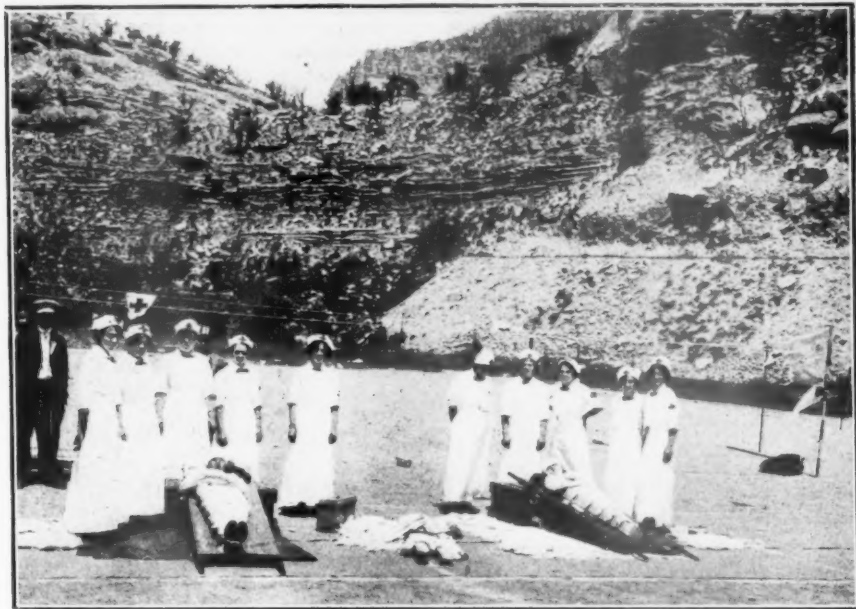
SAFETY FIRST

BEGINNING AND GROWTH OF THE MOVEMENT—ITS PURPOSE—ITS WIDE-SPREAD AND FAR-REACHING BENEFITS

The crack passenger train of one of our trans-continental lines was making its way over a section of territory which, but a few days before, had experienced heavy rains, resulting in numerous wash-outs. The train's progress was slow—it was consistently losing time with every mile. One of the passengers, voicing the general dissatisfaction, inquired the reason. "Because," replied the conductor,

mated or exaggerated. It is a matter that intimately concerns and affects the lives of all. The conservation of life and health is an investment that yields big dividends, not alone in its relation to human welfare but in a monetary way as well.

The noted mining engineer, Mr. John Hays Hammond, in an address at the Universal Peace Meeting, held in Wash-



WOMEN'S FIRST AID TEAM AT WINTER QUARTERS MINE, UTAH COPPER CO.

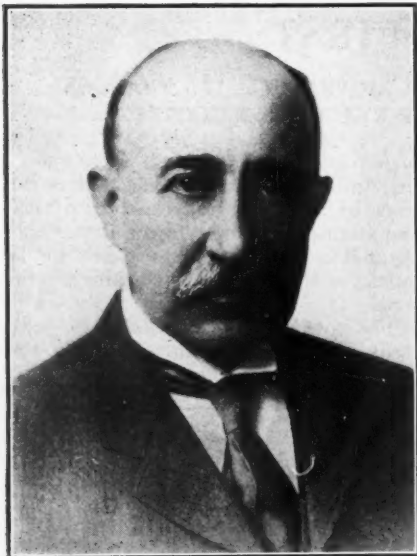
"the company prefers that we get to our destination a few hours behind schedule, if necessary, rather than to take a chance on getting into eternity several years ahead of time." That conductor was expressing the safety-first idea as applied to railroading.

The conservation of human life and human energy is a subject the great importance of which cannot be over-esti-

imated or exaggerated. It is a matter that intimately concerns and affects the lives of all. The conservation of life and health is an investment that yields big dividends, not alone in its relation to human welfare but in a monetary way as well.

ington, January 17, 1915, in deploring the waste of war, said:

Every year the great white scourge—tuberculosis—causes two hundred thousand deaths in the United States. Authorities compute the annual capitalized loss from invalidism and death due to tuberculosis at more than one billion dollars, through the devitalizing of American industry. And yet the same authorities affirm that an expenditure not to exceed fifty million dollars per annum—one-fifth of our military and naval



JOHN HAYS HAMMOND

budget—would, in a few decades suffice to practically eradicate tuberculosis in the United States.

Has the nation more vital interests to safeguard than interests of this kind? Would it not be more intelligent to expend the

billions of dollars now applied to the destruction of our civilization, to the waging of war against disease, ignorance and intolerance—the inveterate enemies of humanity.

Mr. Hammond's remarks are indicative of the growing trend of thought, of the increasing sentiment in favor of the conservation of life, health and human well-being, a phase of which is so well expressed in the expression, "Safety first."

Few, if any, slogans are better known than that of Safety-First. Few, if any, stand for more or better. Few, through their use, through the inspiration they have created, have accomplished more, and none perhaps has been more far-reaching in its effects. Almost everyone is familiar with its terse phraseology and yet it is a safe proposition that most men and women do not realize to what extent the Safety-First movement closely concerns them. In a vague way they, perhaps, know it has a bearing on traveling by train or trolley, but beyond that the generality of persons have given little thought to a movement that, beginning in a small way, has grown to such proportions that it is a factor affecting the lives of every man, woman and child in the country.



U. S. BUREAU OF MINES RESCUE STATION AT SEATTLE, WASHINGTON



ILLINOIS MINE SAFETY STATION

The origin of the Safety-First idea and the slogan is in doubt. It is practically admitted, however, that the expression, or some form of it, had early use in the mining industry, the matter of greater safety and accident prevention being recognized at several mines and metallurgical plants a considerable number of years ago. Some little attention was being given in isolated cases to first-aid work, which had first been introduced into the Army and Navy, and later extended to the Forestry Service and Reclamation Service, and later still to cover the employes constructing the Panama Canal. The National Red Cross Society, of course, had had for years its first-aid service.

The spread of the Safety-First idea through the mining fields was undoubtedly hastened and materially aided and advanced through the creation of the Bureau of Mines, that branch of the Government service at once taking up and pushing it. The investigation of mine accidents by the Bureau of Mines can, perhaps, be said to have been the real beginning of the widespread movement.

The work of the Bureau of Mines along Safety-First lines began with instructing miners in safety methods, the use of mine rescue apparatus and first-aid treatment. This was in 1908. At that time there were only two localities

in the United State where first-aid was being taught coal miners—in the anthracite field of Pennsylvania and that of Birmingham, Alabama. The only sets of breathing apparatus in use anywhere were those owned by the Anaconda Company, of Butte, Montana.

Today in practically every State wherein are found mines the matter of greater safety receives attention. Eight



Left to right.—J. W. Paul, engineer in charge of rescue work, Bureau of Mines. Geo. S. Rice, Chief Mining Engineer, Bureau of Mines. J. Taffanel, in charge of French Explosives Station. L. M. Jones, engineer in charge of Experimental Mines, Bureau of Mines, Bruceton, Pa., near Pittsburgh, taken at Experimental Mine.

States have already taken legislative action in the Safety-First movement in mines—these States being Illinois, Ohio,



A TRAPPER BOY

Oklahoma, Nevada, Colorado, Tennessee, Kentucky and New Mexico. Other States are rapidly falling in line. In many ways the propaganda is being forwarded and gaining momentum. The Bureau of Mines is issuing, from time to time, seasonable and instructive bulletins and circulars on the subject, adding to its already extensive and valuable collection of Safety-First literature. Tests are made at experimental mine stations. In several states rescue stations are being erected, adding to the number already in operation. Lectures are given, classes are formed and courses conducted at many mining centers. In numerous of the schools in the mining districts, the Safety-First idea receives, at least, occasional notice, while in many institutes, and not a few of the universities, instruction as to accident prevention and first-aid work is included.

A large number of mining concerns have effected organizations looking to greater safety and the minimizing of accidents, among them being inspection bureaus, safety-first committees and in-

stitutes. Mine rescue and first-aid are the basis, or nucleus, upon which or around which each organization is built.

One of the notable results of the Safety-First idea has been the development of the humanitarian spirit in the field of business. It has led in many cases to a fuller consideration of the moral and mental, as well as the physical, welfare of the employees and their families.

In the coal fields of Pennsylvania more than 10,000 men have received instruction or have been trained in first-aid and rescue team work. In the anthracite region there were, at last report, 454 first-aid teams, comprising 2,556 men, and the number reported as instructed in relief work, up to the present time, 5,229. The number of rescue corps was given as 97, comprising 896 men, with 2,521 who have received instruction. In the bituminous region there are 362 first-aid teams, with 1,779 men and 2,156 instructed and 52 rescue corps, made up of 282 men and 594 instructed.

The Copper Queen Consolidated Mining Company of Arizona reports for its



RESCUERS WITH APPARATUS

first year under Safety-First rules a reduction in fatalities of about fifty-five per cent as compared with the previous year and the serious accidents reduced by about forty per cent. This, in mines averaging about 190 accidents per month, or seven and one-half for each working day, under Safety-First ideas testifies to the practical value of Safety-First methods.

The record of a large company in western Pennsylvania for a period of nine years shows a reduction in non-fatal

Oregon, 3; Maryland, New Jersey and Texas, 1 each.

Field meets in connection with Safety-First work in mines during the calendar year of 1914 were held in eighteen States, forty-three meets in all. The number of mines represented were 441, and teams participating 533, a total, including patients, of 3,139. Cash prizes, cups, medals, buttons, pennants and special prizes were competed for. Among those cooperating to bring about greater safety are local mining and state insti-



A CONSTANT REMINDER OF SAFETY FIRST

Picture taken at a point two miles in from main portal of Kellogg Tunnel—Bunker Hill and Sullivan Mine, Idaho

injuries of approximately one-half, and of fatal injuries, forty per cent.

In the number of men trained for mine rescue and first-aid, as reported to June 30, 1914, Pennsylvania leads with 1,519 certificates issued; Colorado, 556; Kentucky, 518; Arizona, 422; Montana, 415; Washington, 401; Michigan, 358; Wyoming, 332; Minnesota, 315; West Virginia, 294; Indiana, 270; Missouri, 237; Iowa, 195; Tennessee, 182; Oklahoma, 171; New Mexico, 156; Arkansas, 149; Alabama, 141; Kansas, 131; Virginia, 117; Nevada, 115; Idaho, 107; Illinois, 84; Utah, 77; South Dakota, 63; California, 45; Wisconsin, 33; Ohio, 29;

tutes, miners, mine operators and mine officials, miners' unions, operators' associations, the Y. M. C. A., the Red Cross, local safety committees, mining schools, American mine safety associations, state mine inspectors, technical and trade journals and the press.

Railroads and street car companies have not been slow in taking up the movement. As showing the value of it as applied to travel, the Pennsylvania system during the last half of the fiscal year ended July 1, 1914, carried 87,000,000 passengers, and not one of its passengers was killed in a train accident. In the calendar year, 1913, the

Pennsylvania lines east of Pittsburgh carried 108,000,000 passengers, more than the entire population of the United States, and its over seas possessions, and not one person was killed in a train accident.

The New York Central, in the three and one-half years ended July 1, 1914, operating 1,266,654 passenger trains, and 819,513 freight trains, and carrying 136,154,983 passengers, recorded not a single passenger killed in a train accident.

A very prominent coal operator of the Pennsylvania anthracite field is quoted as saying that for every dollar spent by his company on care because of accidents, \$100 is now being spent to prevent them. His company has among its employees 10,000 trained men in first-aid to the injured work, a first-aid corps, equipped with medical supplies, in every colliery, hospitals larger than those required by law and is spending hundreds of thousands of dollars for the one purpose of saving human life.

The phase of the Safety-First idea as applied to mining that does not generally occur to the average citizen not directly interested in the ownership or operation of a mine, is that of how it directly affects him. The average individual rejoices in the humanitarianism. He is glad to see the conservation of life and the curtailment of suffering and want, which Safety-First means, but that it concerns him in an economic way, a monetary way, very seldom occurs to him. Perhaps in some slight degree he may glimpse the fact that the great toll of life taken and time lost may be figured in his coal bill, but more likely it will not have occurred to him. Provided, however, he has, that is likely to be so far as his connecting up of the matter goes. Possibly, too, he does not buy coal—if so, that lets him out. But does it? It most certainly does not. Far from it. The Nation's fuel and ore bill taxes every man and woman in the Union. It is figured in the cost of every article of use; the clothes we wear, the houses we live in, the food we eat, all pay tribute to coal and metals. The manufacturing of the cloth in our garments has called for heat and metal. The tools of the tailor in the

fashioning, likewise. The shop wherein the clothing was made and the store in which it was sold needed heat in winter. The tools of the carpenter and the implements of the farmer and gardener have equally needed the fire of furnace and forge and the minerals of the earth. The light that illuminates our houses and the power that drives our cars can be traced back to coal from the mines.

Now in this mine cost, which enters so into the price of all else, it is easily conceivable that the losses by disasters, the cost of human life, the expenses and the loss of time attendant on injury, the compensation to the living for hurts to themselves or the loss by death of their bread winners, must all be reckoned in the price received for each and every ton of mineral production. All goes to make the price higher. Every disaster averted, every life spared, every injury avoided is a factor for lower cost of production—a conservation of cost as well as of life.

Elsewhere in this journal, under the heading, "Metallurgical Research and Mine Safety Stations," some startling facts as to human life's toll in mines are given. It is a presentation of its case that should have a wide reading.

It takes little argument to demonstrate that alleviation of these conditions, conditions where thousands of lives are annually lost, would not only be humanitarianism in its highest and noblest form, but decidedly good business.

The MINING CONGRESS JOURNAL stands for the Safety-First idea. Whatever influence it may have, is, and will continue to be, thrown unqualifiedly and unreservedly at all times on the side of the conservation of human life and of human energy. It is a privilege and an opportunity as well as a responsibility to advocate and forward the gospel of Safety-First—a privilege and an opportunity of which the THE JOURNAL gladly avails itself.

THE ROAD TO ATTAINMENT

The way out and the way upward is in learning. The truth embodied in this thought is recognized and acted upon by many miners in Pennsylvania, where

the "boys," not a few of them veterans in the field of mining service and some of them gray bearded and gray headed, are taking advantage of the opportunities afforded them in the night schools. There are 482 students enrolled in the Nanticoke night schools, which are the outgrowth of the Nanticoke District Mining Institute, which has a membership of over 900 mine workers.

There are many schools in the anthracite region. At Shamokin, in the Shamokin-Mt. Carmel district there is a large institute made up of employees of the Susquehanna Coal Company and the Philadelphia & Reading Coal & Iron Company. Similar schools are conducted in four school districts. There are schools at Plymouth and Shickshinny and institutes at Williams Valley and Lykens.

Besides the schools under the control of the local school boards and helped by the state, there are a number conducted by the operators without state aid.

In the various schools, elementary and advanced mining are taught, also mechanical drawing, machine work, electrical work, commercial courses, shorthand and typewriting, reading and arithmetic. Sewing, millinery and household economy are taught the girls and women. The Nanticoke district has recently added to its staff a woman field secretary.

WASHINGTON MINE STUDY COURSES

The Tacoma (Wash.) *Ledger* says that the activities of the University of Washington and the State College of Washington are so alike in so many particulars that one is almost forced to the conclusion that the duplication of the courses is deliberate, rather than accidental. It declares that the duplication even extends to the short winter courses. These courses include assaying, mine surveying, chemistry, mineralogy, geol-

ogy, mining and metallurgy, instruction in which is given in the winter school of mines in the State College of Washington, which runs for twelve weeks, beginning the first Wednesday in January. The course is designed to meet the needs of the prospector and mining man who cannot afford the time required for the regular two or four year courses. The University of Washington offers practically the same subject and in addition coal mining and rescue work, the last named instruction to be given in the United States mine rescue station situated on the campus.

ALBERTA AIDS MINERS

Alberta, Canada, is extending its educational service so as to aid the coal miners of various parts of the province. Schools have been established at mines and are operated whenever possible in connection with local school boards, the Government paying 50 per cent of the cost and the respective municipalities the remaining one half.

The schools are receiving the cordial support of the mine managers. Those in attendance represent many nationalities. All are showing eagerness to improve their technical knowledge and to qualify themselves for promotion. The work of the teachers provided by the Government is supplemented by the engineers connected with the mines, the engineers volunteering their services free. The technical schools in the cities are also well attended especially the evening classes.

Hon. J. R. Boyle, Minister of Education in the Alberta Cabinet, is authority for the statement with the coal production of Alberta is now 5,000,000 tons annually and is increasing each year. There are a variety of coals suitable for domestic and factory uses. An excellent quality of semi-bituminous coal is sold in Edmonton, at \$2.65 per ton.

THE COAL SITUATION IN INDIANA AND ILLINOIS

STATEMENT PREPARED BY THE OPERATORS' ASSOCIATIONS FOR PRESENTATION TO PRESIDENT WILSON

The coal operators of the states of Indiana and Illinois present to the American nation some facts about the condition of their business. The normal state of this industry for some years has been such as to endanger the lives of the miners, waste the coal reserve which now insures the safety of the Eastern part of the country and deprive these operators of any hope of profit. The recent general business depression has caused an intense exaggeration of this dangerous condition. The near future contains nothing but disaster unless some relief is extended. What follows summarizes the facts.

This coal sells in a market embracing eighteen states. The business is therefore interstate. For that reason, these operators are amenable to the anti-trust laws which, they believe, forbid any co-operation among them. Because they cannot cooperate, they cannot simplify their selling methods or reduce their selling and operating costs.

Their mines are within these two states and cannot be removed therefrom. The states, therefore, regulate their operating methods.

The effect of the nation's anti-trust laws is to cause them to compete without restraint. This unrestrained competition has yielded a decreasing selling price. The states' laws, which were enacted to assure the safety and the social welfare of the miners, have resulted in a rising production cost. The effects of these two sets of laws have moved in opposite directions. The rising cost of production and the falling selling price have long since made profit impossible and now threaten the safety of the whole business structure as well as of the miners and the public.

One of the refinements of competition in which these operators have indulged, has been the erection of elaborate

plants with which to prepare and clean carefully nine standard sizes of coal. In obedience to the states' laws, they have fireproofed their mines and have added expensive safety appliances. These things have enlarged the requisite investment in plant and equipment by 1,000 per cent in the last twenty years.

Another effect of enforced competition has been intense individualism. In consequence, they have opened three mines where only two were needed; they have employed three men where only two were necessary. These mines and men can find productive work only during 175 instead of a possible 300 days in a year.

Because they can give to their miners work but part of the time, these operators must pay higher daily wages than are warranted by the current selling prices. Their labor cost is 92.44 cents per ton, whereas the selling price is but \$1.14 and \$1.11 respectively for Illinois and Indiana.

From the resulting narrow margin, these operators must pay: Administrative salaries and expenses; selling cost; royalty or land depletion charge; depreciation on plant and equipment; the cost of all materials used in the mines and some eight or ten other major items of expense. The margin is, clearly, wiped out by these items of expense, leaving the business with no possible net revenue. Still, these operators are morally or legally obligated to pay the cost of any great or dire emergencies; to educate their miners in ways of assuring greater safety; to educate the users in methods by which coal can be burned with greater efficiency; to expand their sales into the foreign markets; to experiment with and undertake the manufacture of by-products and to do those hundreds of little things which make for

greater safety and for true conservation.

One obligation resting upon these operators is to recover the pillar and top coal that the country's loss may be lessened. Because this involves an additional expense, it cannot be undertaken. Still, for every two acres of coal land which they exhaust, they leave one acre of coal unrecovered and unrecoverable in the ground. This means that in Illinois, each year, there is exhausted 12,000 acres of coal land whereas the exhaustion should be but 8,000 acres. In Indiana, there is exhausted each year, 3,000 acres whereas there should be exhausted but 2,000 acres. In the nation there is exhausted each year 100,000 acres whereas the exhaustion should be but 65,000 or 70,000 acres. It is significant, here, that these are two of the five states which produce more than 80 per cent of the coal consumed in America. This means to say that this alarming waste is taking place next door to the centers of greatest density of population. It is endangering the near future of the very heart of this nation.

These operators, caught between the conflicting regulations of the states and the nation, yet under compulsion to obey both, are powerless to prevent this waste. Only the nation can reverse this tendency and provide against it. This statement is made in the hope that some suggestion will be made which will bring the relief needed.

A STATEMENT OF FACT

It has been said that the normal condition of the coal mining industry is one of dangerous financial exhaustion. Since the end of the depression in 1897, the farms and factories have enjoyed increasing prosperity. This has not been shared, at any time or in any degree, by the coal industry. Regardless of the regular and substantial annual increase in tonnage produced, the returns from investments in the coal trade have been steadily diminishing. Coal has supplied the power which made every business rich, yet the author of all this wealth remains poor.

In the last dozen years, in fact, there have been but a few brief periods in

which the coal trade has enjoyed any prosperity. These prevailed in each instance for not to exceed two or three months. They were due to wholly unnatural causes, and in no manner indicated that the business had, at last, become master in its own house. For example, these operators got remunerative prices during the anthracite strike of 1902, when they profited by the misfortunes of others. For very short periods of car shortage in the winters of 1903 and 1904, this experience was duplicated. One or twice since that time, strikes or other temporary labor difficulties in one state gave the other states business, to which they had no natural right. Except in such times, the trade has been unprofitable or actually showed a loss.

Meanwhile there has been a steady increase in operating and administrative expense due:

1. To repeated advances in labor cost.
2. To the increased cost of material, such as rails, timber and cement, and machinery.
3. To the passage of laws in behalf of the workers such as the safety measures and the Workmen's Compensation Act in Illinois.
4. To the increased cost of making sales, arising from unrestricted competition.

THE COST OF PRODUCTION

According to the figures compiled by the Bureau of the Census, the amount paid in wages was, in 1909, above 80 per cent of the total selling value of coal at the mine mouth. Since 1909 there have been granted two wage increases—one in 1910 (5.55 per cent) and another in 1912 (5.26 per cent). These increases have brought the wage cost per ton of coal produced to 92.44 cents in 1913.

In 1913, the average selling price of coal at the mines in Illinois was \$1.14 and in Indiana \$1.11 per ton. This leaves only 21.6 cents in Illinois and 18.6 cents in Indiana available, out of which must be paid:

The cost of material used at the mines;

The cost of making sales;

All officers' salaries;
 General expenses;
 Insurance (liability, fire, storm, etc.);
 Taxes (including tax on plant and mineral rights);
 Interest on the investment;
 Depreciation of plant;
 Royalties or charges for the exhaustion of coal.

The last report of the Bureau of Census (1909) showed that without allow-

so good a year as 1913 an actual profit return was impossible, but to the contrary and as existing facts show developed a substantial deficit for the industry in these two states.

A considerable addition to the cost of production is made by the idle time of the mines, during which all overhead and some labor costs must be paid. The average number of productive days worked per annum in these two states is

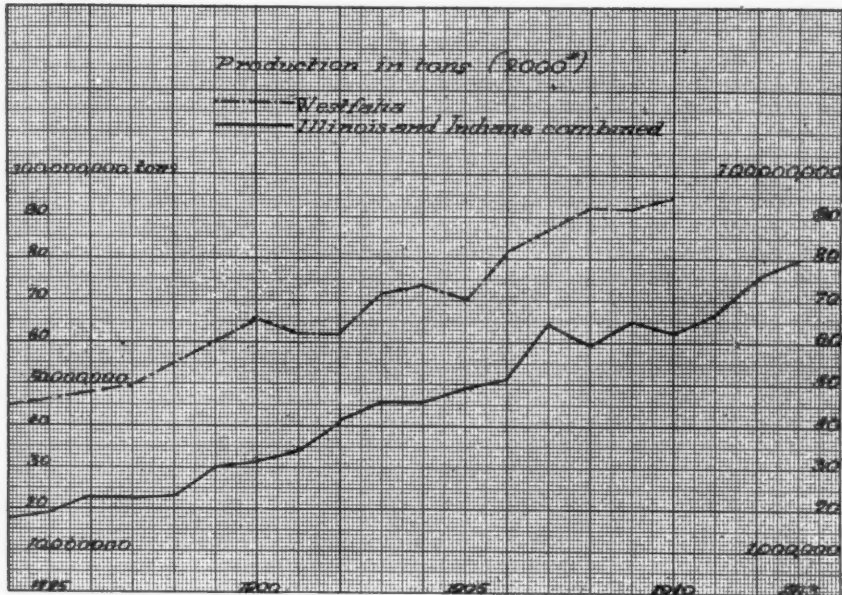


FIGURE 1.

The top line shows the production of the Westfalia syndicate from 1894 to 1912. The bottom line shows that of Illinois and Indiana combined. The rate of increase is almost identical.

ing for any interest charge on the investment or for amortization of property, the so-called net returns in Illinois and Indiana were only three cents per ton in Illinois and less than one cent per ton in Indiana.

The average royalty paid, however, in these two states on coal recovered under lease is five cents per ton and the average present valuation of coal land is such as to require a very minimum amortization charge of three cents per ton to recover such land value within the period of the mine's life.

It will, therefore, be seen that in even

only about 175 out of a possible 300 or more. This idle time of the miners is not confined to one season or period during which they can find employment elsewhere. To the contrary, the men are always subject to call, for which reason they urge greater daily wage that their annual income may be sufficient for their needs. This causes these operators to grant abnormal wage advances, which are directly reflected in coal cost.

Many industrial plants which produce standard or basic commodities find it possible to operate twenty-four hours per day by using different shifts of men.

They work thus for 310 or more days a year or a total of 7,440 hours per year.

Still other industries, on two eight or ten hour shifts, per twenty-four hours—300 to 310 days per year—operate 5,000 to 6,000 hours per annum.

Even one eight hour shift in each twenty-four hour period—310 days per year—gives 2,480 working hours per annum. These mine operators, because under unrestricted competition they built more plants than are needed, can only operate for eight hours out of every twenty-four, and for 175 days per year, or 1,400 hours.

It will be seen, therefore, that as against 100 per cent plant utilization (twenty-four hours, 310 days—7,440 hours per annum) possible to some industries and as against an average by all industries of 33 per cent to 45 per cent (one eight or ten shift per twenty-four hour period—310 days), a coal plant is in actual productive use only about 18 per cent of the time. This makes plant, interest and depreciation charges six times heavier than for other industries.

In addition to ruining the operators, this distresses the miners. For example, the 97,000 miners of Illinois and Indiana who are prevented from working 125 days per year might, at the present wage, have earned an additional \$36,400,000 or \$371 per man per year, had their employers been able to give them work or had their efforts been expended in other directions.

The present markets for Illinois and Indiana coal can be supplied by 60 per cent of the mines now being operated. The interest on the surplus capital invested in these unnecessary mines adds to the cost of production in each.

(For concurring opinion of labor on these points these operators refer to the appendix which contains certain testimony given at a hearing in Chicago the latter part of July, 1914, before the United States Commission on Industrial Relations, by Duncan McDonald, secretary-treasurer of the United Mine Workers in Illinois.)

THE CONSEQUENCES OF THIS WASTE

Having shown the cost of mining coal and having measured it alongside the revenue from the sale, it remains to measure the consequences.

In Bulletin 47 of the United States Bureau of Mines, Dr. J. A. Holmes, Director of the Bureau, states:

"During the past year (1911) in producing 500,000,000 tons of coal we wasted or left underground in such condition that it will probably not be recovered in the future, 250,000,000 tons of coal. In a higher way, our mineral resources should be regarded as property to be held in trust with regard to both the present and future needs of the country. Neither human labor nor human agency has contributed to their intrinsic value and whatever rights the individual may possess have been derived from the general government. The government does not surrender its right, and should not neglect its duty to safeguard the welfare of its future citizens by preventing the waste of these resources."

It is customary to say that the mining of coal is an extractive industry. The phraseology is too weak; it must be considered as a destructive industry. That is to say, each ton of coal removed destroys by just that much the value of the plant engaged in producing it. Also, it destroys by that much the country's coal reserve. Coal once mined or lost can never be replaced. With the life cycle of several large coal deposits well defined and with the end not extremely remote, the deliberate waste of coal by mining methods now in use constitutes an immediate menace. However, when these operators have no margin above cost under the best market conditions and when working only the choicest areas, the removal of thinner or inferior parts at a much higher cost per ton is out of question. This will be explained briefly.

The major portion of the thick-seam coal in Illinois and Indiana is recovered by the so-called room and pillar plan, the work advancing toward the boundaries of the controlled area from the shaft bottom. By such method pillars of coal, of sufficient size to sustain the overlying weight, are left standing twen-

UNITED STATES CENSUS 1909

1909	Num- ber of Oper- ators	Capital	EXPENSES						Number of Wage Earners	Coal Produced, including Coal Coked at Mines	
			Total	Salaries	Wages	Supplies	Royalties	Miscellaneous Expenses		Value incl. Minor Products	Tons (2,000 lbs.)
Illinois.....	470	\$75,257,667 per ton 1.488	\$51,697,504 1,024	\$2,083,668 .041	\$41,991,246 .832	\$4,944,371 .0977	\$744,860 .014	\$1,933,359 .038	74,445	\$53,030,545 1.05	50,570,503
Indiana.....	223	35,937,961 per ton 2.441	14,906,831 1.012	604,111 .041	12,273,544 .834	1,198,974 .0815	240,494 .0163	589,708 .040	22,357	15,018,123 1.02	14,723,231
1909 and 1889	Cen- sus	Capital	Total	Wages	Supplies	Contract Work	Value at Mines	Tons (2,000 lbs.)	Wage Ratio to Value		
Illinois.....	1909	\$75,257,667 per ton 1.488	\$51,697,504 1,024	\$41,991,246 .832	\$4,944,371 .0977	\$51,480 .0001	\$52,999,918 1.048	50,570,503	79%		
	1889	17,630,351 per ton 1.457	10,366,069 .856	8,111,253 .670	966,927 .0799	26,662 .002	11,755,203 .097	12,104,272	69%		
Indiana.....	1909	35,937,961 per ton 2.441	14,906,831 1.012	12,273,544 .834	1,198,974 .0815	10,674 .0007	14,984,616 1.018	14,723,231	81%		
	1889	3,435,703 per ton 1.207	2,581,669 .906	2,045,641 .718	241,094 .0847	5,807 .0002	2,887,852 1.015	2,845,057	70%		

WAGE INCREASES

1910—5.55%
 1912—5.26% bring wages to 92.44c. per ton for Illinois and Indiana, 1913.
 1913—Revenue per ton Illinois—\$1.14.
 1913—Revenue per ton Indiana—\$1.11.
 Leaving 21.6c. in Illinois, and 18.6c. in Indiana per ton out of which must be paid Salaries, Material, Insurance, Losses, Sales Expenses, General Expenses, Interest, Depreciation and Exhaustion of Coal and Profit.

ty-five to forty feet apart. Also all coal above certain well defined lines of parting in the seam are left up to protect a roof until the boundaries of the acreage have been reached.

These pillars and the so-called top coal are supposed to be recovered as the work is carried back to the bottom of the shaft. In actual practice, however, this is seldom or never done. Thus the actual coal recovery from any given acreage seldom exceeds 50 per cent of the total amount in the seam out of a possible 90-95 per cent available by proper mining practice. This is true for this reason. As the distance from the shaft increases, the expense of haulage and road maintenance increases. Also the hazard from gas and loss from mine falls increase. Likewise, in working backward to the shaft the quality of the coal secured is impaired by reason of contamination with accumulated refuse of earlier work. Therefore, all these valuable areas are simply abandoned, because the operator cannot afford to pay the extra cost of reclaiming this coal.

It also occurs at various places that substantial bodies of coal lie between the boundary lines of two approximately adjoining mines. The extra haulage cost to either shaft, for the removal of this intermediate coal (although only a few cents), cannot be borne without operating loss. Such areas are therefore entirely neglected and cannot later be recovered because the amount of coal available would not justify the development of a new mine to reach them.

Although not strictly germane to the subject in hand, mineral land taxation arises as an indirect causative factor of waste. Many operating companies hesitate to secure as large areas as might be economically available to their shafts because they wish to avoid tax payment through a long period of years on a valuation of coal rights which is unwarranted. They prefer to let title to such additional acreage rest with the farmer or other owner who uses only the surface and who, while so using it, does not pay any tax on the underlying coal. Later, it frequently occurs that such original owner, with an unreasonable notion of the value of his coal rights, makes pur-

chase impossible through demand for excessive price. This coal also is abandoned along with the adjoining worked-out area.

This waste of coal should concern the Eastern and Central states sufficiently to cause some relief to be extended to these operators. It is to the country's interest to see that these operators get enough money to make this recovery reasonably complete.

SOCIAL CONSEQUENCES OF LOSS

Aside from the economic waste mentioned herein, the loss of revenue has serious social consequences.

The continuous and prolonged lack of any profit in the coal industry makes it impossible for these operators to furnish, in all instances, the necessary safeguards to make mining even a relatively safe occupation.

It has also occasioned the rejection by many of the provisions of the Illinois Workmen's Compensation Act. That is to say, coal companies without current net earnings or any sort of reserve resources are not willing to assume such additional definite obligations as the law proposes; to make provision for the injured workman and his family or even to obligate themselves to make incidental payments of any kind. Necessity compels them to rest their hope on the throw of chance in a judicial hearing. They rely on a court's decree to leave them something of their capital, whereas if they worked under this law they might as well have no capital for all the return they can hope to get upon it.

For this reason, the anticipated value and beneficent purposes of such legislation is clearly nullified. And until, by common consent, the conditions detailed in this statement of fact have been ameliorated, further effort taking the form of additional legislation, however worthy, rational or desirable, will prove similarly abortive and futile.

COAL AND REGULATION OF BUSINESS

For a part of the present disastrous condition of their industry the coal operators are, perhaps, themselves responsible. They have not organized their business as many other industries have

done. However, with the very stringent anti-trust laws of the states and the Sherman Act confronting them, much uncertainty has existed and still exists as to what the various laws permit. Because of this uncertainty no concerted action has been taken. During the period of waiting for some new light on the laws, many operators have hoped that some solution would come and that they might survive until the dawn while competitors would fail.

The recent passage of certain acts, which may with propriety be called enabling laws, encourages these operators to believe that public sentiment has so changed that a possible opportunity to secure relief presents itself. They, therefore, submit this statement.

Their hope is that the Trades Commission may be the governmental means through which the nation will ultimately be thoroughly enlightened regarding the absolute equities of their industry. They

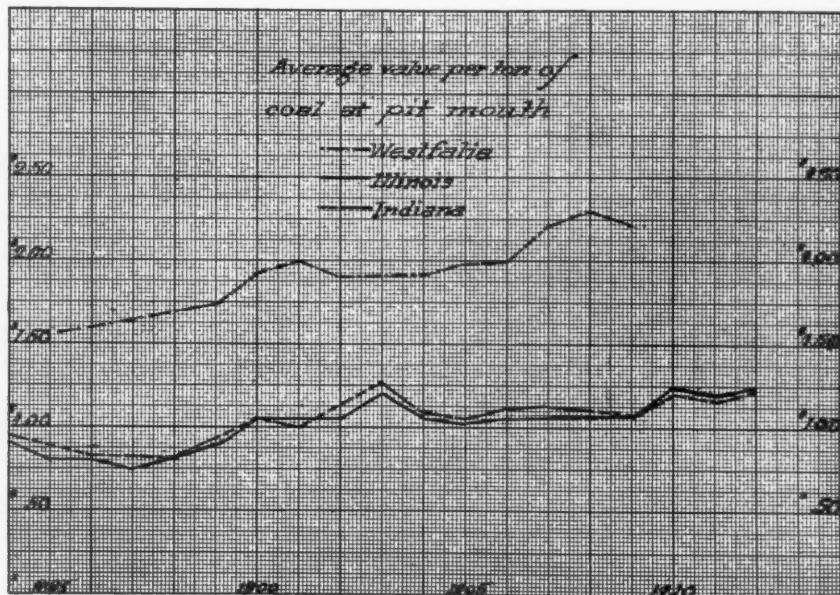


FIGURE 2.

This shows the average selling price of coal at the pit mouth from 1894 to 1912. The Westfalia increase was 75 cents a ton; that in Indiana and Illinois was 30 cents a ton.

They have been discouraged by the severity of judicial rebuke, which has, throughout the last several years, followed many community efforts in other industries. These operators have, therefore, done nothing, but are now prepared to defend their claim to just consideration and a fair return. They do this not alone for selfish reasons but because they want to make appropriate provisions for conserving natural resources, and to grant their workers physical and social comforts beyond those now possible.

further believe that, on account of its extent and importance, they are warranted in urging as a first consideration that one of the members of this Trades Commission shall be a capable, experienced man, who is familiar with mining conditions and requirements, is acceptable to the coal industry and who can bring to the Commission sound judgment on all matters affecting these interests.

They also hope that through the agency of this Commission, or upon the sanctioned initiative of the operators

themselves, the apparently necessary remedy for present conditions may be immediately applied, such remedial plan to be subject to a later determination by the Federal Government, working through an appropriate agency, as to its propriety.

There is no desire now or hereafter to establish a coal monopoly. Much less is there a desire among these operators to extort unreasonable profits. But they consider it vitally essential to stapleize the industry for the benefit alike of the workmen, the consumers and investors. It is, they believe, reasonable to assume that as long as the Government sustains and encourages the principle of collective action—as evidenced by the exemption of labor unions from anti-trust measures—it would also sanction a plan enabling coal operators to cooperate in a similarly legitimate way, particularly if appropriate and definite governmental control were included to the extent, at least, of permitting all of such activities to be known to the public and provided that sufficient and ample penalties be provided and imposed for the violation of all such rules, agreements or laws as may be devised to regulate such collective actions.

Coal operators would not object to, but, on the contrary, would invite such publicity and supervision.

This suggestion is particularly pertinent for this reason. On every hand these coal operators are confronted by combined purchasing agencies to which they sell their coal and by combined workmen from whom they buy their labor. Thus situated, these operators are obviously at a disadvantage when, disorganized as herein stated, both their buying and their selling are done with collective or cooperating units.

Other industries enjoy a degree of encouragement and protection by the Government which is denied the coal mining industry. In volume of business, mining is approximately one-half that of agriculture; these major industries are alike in that both work the land in recovering vital necessities for the public use, yet, regardless of the fact that the exhaustion of the mineral deposits is irremediable, while the loss of soil fertility and

productiveness can be overcome, the United States spends only one-twenty-fourth as much to promote the mining industry as to help agriculture. Intimately affecting, as it does, the lives and welfare of all our citizens, the coal industry deserves and should receive at the hands of our law makers, attention proportionate to its importance.

The publications of the United States Geological Survey and the Bureau of Mines, while helpful in the physical operation of properties, do not contain statistics such as are furnished by the Agricultural Department dealing with costs, values and distribution. The appropriations are entirely too small.

When the Southern cotton growers suddenly found their market demoralized by the European war, prompt investigations were made and assistance rendered. Whatever the major sentiment or opinion may be with reference to the propriety and warrant of such help so extended, the fact remains that however bad and unfortunate this situation may be, it is still not so serious (except perhaps as to the number of persons immediately involved) as the present coal producing situation. Nor is it as threatening to the general welfare. For, even though all the present cotton crop be lost and return no value whatever, the land remains and later crops are possible. With coal removal or waste, the land is exhausted of such value permanently, and the serviceability and use of a coal mining plant is not, as with the land, perennial.

Cooperation would not only greatly benefit the workmen and investors in the coal business, but would encourage the establishment of other industries now sorely needed in this country.

For example, the necessity for the establishment of by-products and coking plants is very evident. The utilization of sulphate of ammonia for fertilizer, creosote oil for timber treatment, the products of coal tar for industrial and pharmaceutical purposes is too well known to require further reference. Over \$12,000,000 were paid last year for coal tar products imported from abroad. Of the 95,000,000 gallons of creosote oil consumed in the treatment of ties and timber, 60,000,000 gallons were import-

ed. Of the 44,000,000 tons of coke manufactured in the United States in 1912, 33,000,000 tons were made in beehive ovens and the waste in smoke was over \$50,000,000.

It is only through cooperation that the coal operators can get together the money needed to establish the coking and by-product industry on a proper basis in this country. That is to say, the coal man is the proper producer of these by-products but he cannot do so because he has

our resources but have ruthlessly destroyed the heritage belonging to ourselves and our children. If we are to keep our place in the commercial world we must learn the lesson of economy and we need offer no apology if we propose to learn this lesson in part from those old world nations which have been forced by stern necessity to conserve every resource in order to support their dense populations. One notable example is the Westfalia Syndicate of Germany and it

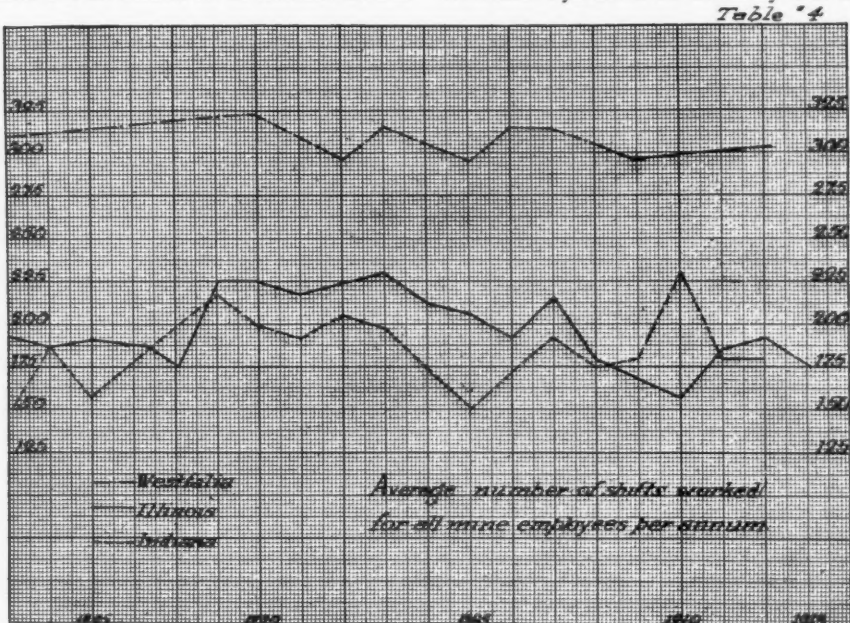


FIGURE 4.

This shows the number of shifts worked by Westfalia and Illinois and Indiana from 1894 to 1912. Westfalia made an average of about 300 days a year. Illinois and Indiana made less than 200 days.

not the capital and cannot get it because his business is so disorganized he has no longer any credit.

APPENDIX

A LESSON FROM GERMANY

In the commerce of the world, the United States has established itself in a manner unparalleled by any other nation. However, in gaining our supremacy we have not found it necessary to economize

is especially a case in point, because, at the time of the organization of the syndicate, the circumstances were similar to those existing in America at present. It is possible, therefore, that we may profit by a study of their experience which has solved the problem for them after they had endured a most disastrous and trying period extending over thirty years.

As early as 1850 the mine operators of the Westfalia District suffered from severe competition due to overproduction, and various efforts were made to find relief. Price agreements, which are

not forbidden by the German law, were disregarded, notwithstanding the very heavy penalties imposed for violations. Finally in 1885 the Westfalia Syndicate was established and continues to date. It is a selling organization without any properties and only a very nominal working capital. Its affairs are administered by an official who has no financial interest in the mines and acts as chairman of a board made up of one representative from each participating company. The function of the Syndicate is to sell the product of the mines, coke ovens and briquetting plants, and to allot to each company the tonnage which it should produce. Twice each year an estimate of the probable requirements is made, and the tonnage is allotted to each company, based upon previous production after making allowance for tonnage to companies consuming a part of their own production, such as railways, furnaces, etc. On the first of May each company is notified how much coal it will be called upon to furnish during the second half of the calendar year, and each mine can make its arrangement for the most economical production of the tonnage called for. Any company falling short in its supply, if market conditions continue as anticipated, must pay damages for the shortage, unless the deficit can be made up by another company. Losses due to inferior preparation are borne by the company responsible for the same. Prices are agreed upon and fixed in advance semi-annually and take into account the quality of coal produced from each mine, making it immaterial to the purchaser where the coal comes from, because of the adjustment of price to the intrinsic value of the material sold.

It has happened that by some unforeseen condition, the Syndicate was not able to market through its ordinary trade channels the estimated quantities of coal and other markets had to be entered in order to permit the mines to operate under the most economical conditions. Losses due to these conditions are borne alike by all, the Syndicate paying to the participants the price agreed upon, having retained a commission, from which all deficits are paid. The advantages of

a single seller marketing 50,000,000 tons of coal a year are apparent. Markets are available to the Syndicate which individual operators could not reach. The Syndicate contracts are made for five-year periods, which assures an income to the operators and enables them to finance their properties and engage in business more remunerative but requiring large investments, such as the coking, by-product and briquetting plants. Such financing would be impossible with the uncertainties of ordinary competition. The higher returns have enabled the expenditure of money for improved equipment, safety measures, and installation of labor saving devices quite unknown in this country. Complete extraction of coal is required by the Government, and it is estimated that the cost of flushing to sustain overlying stratas and permit removal of all coal adds twenty-five cents per ton to the production cost.

The coal operators are enabled to provide funds for the protection of the injured and killed employees and their families, provide pensions for the incapacitated and aged employees. The cost of this social insurance in 1909 was twenty cents per ton of the production.

The higher coal prices which followed the establishment of the Syndicate have not been protested by the coal consumer. It has been generally accepted as the best expedient in solving a most vexatious question. Undoubtedly more care and economy in the use of coal resulted by the adoption of more economical engines and improved boiler settings.

The Westfalia production increased from 1,665,000 in 1850 to 81,000,000 tons in 1907; at the same time the number of companies was reduced from 100 to 76, indicating growth of individual companies and concentration of capital. The seventeen companies in the Syndicate whose output was sold for commercial use and who were not allied with fuel consuming industries had an aggregate annual production of 28,000,000 tons and a capitalization of \$72,450,000, which is an average of \$4,200,000 each. This indicates an investment of \$2.50 per ton of annual production in plant and equipment, only all the coal being owned by the Government.

For Illinois the capital investment in 1909 was \$1.49; in Indiana \$2.44 per ton of annual production, which latter, however, includes the coal rights, and represent the major portion of the investment.

A PERTINENT PARAPHRASE

As a final thought on this subject, these operators offer a paraphrase of Commissioner Daniels' dissenting opinion when the Interstate Commerce Commission, on July 29, 1914, handed down its decision in the "Eastern Railroads Advance Rate Case." It reads as follows:

"The world-wide phenomenon of rising prices is by this time no novelty. Since 1906 the average rise in the world's price level is estimated by competent statisticians as from 30 to 50 per cent. It has mirrored itself in the raising cost of living; it has evoked, and most properly, advances in wages and salaries; it has coincided with an increase in the nominal rate of interest where part of the interest so-called is but compensation for the anticipated depreciation of the capital sum later to be repaid.

"This rise in the price level must eventually be reckoned with in railroad-ing (coal mining). For a time its effects may be masked by adventitious increases in the volume of traffic (tonnage), but this temporary relief in its very nature is uncertain, and sooner or later this difficulty is sure to reappear. For a time it may be circumvented by extraordinary economies, but in its nature it is inexorable. It must be faced, but not trifled with. It is hardly an adequate remedy to accord to carriers (coal producers) relief only when their returns have reached the well-nigh desperate level now shown.

"A living wage is as necessary for a railroad (coal corporation) as for an individual. A carrier (coal producing company) without a sufficient return to cover costs and obtain in addition a margin of profit large enough to attract new capital for extensions and improvements cannot permanently render service commensurate with the needs of the public."

CONCURRING OPINION OF LABOR

Excerpts from the testimony given July 22, 1914, by Mr. Duncan McDon-

ald, secretary-treasurer U. M. W. of A. (District No. 12—Illinois.) See page 7.

Mr. Thompson: Is there any other thing you would like to say, Mr. McDonald, now, with reference particularly to the industrial conditions existing in the Illinois coal fields, other than what has been said by Mr. Walker and Mr. Bent?

Mr. McDonald: Well, the industrial conditions in Illinois now in the mining industry are the worst that I have ever known in my experience. There are more idle men in Illinois this summer than we ever had before. Scarce a day goes by, or in fact, every day, there are some 50,000 out of employment in Illinois in the mining industry alone. The same men are not idle every day. They may get a day's work this week, and perhaps a half day's work next week. But as a general proposition since the first of April we have had approximately 40,000 men idle all of the time, and 20,000 others idle a greater portion of the time.

* * * *

Mr. Thompson: What remedy would you suggest for this last condition you have spoken of?

Mr. McDonald: I know of no remedy, except the people, or the government, or the state—the public will take over the industry and regulate it in such a manner that we won't have six mines where there is only business for one.

At the present time I know of no law that will prevent men from investing their money in mines and developing them if they see fit. We have now several companies in the state who are sinking new mines, notwithstanding the fact that there is no work now for more than a third of the men, and the equipment is either running one-third of the time, or one-third of it is idle all the time.

Mr. Thompson: Did you hear the suggestion of Mr. Bent with reference to that subject, and how he thinks it could be handled?

Mr. McDonald: In reference to the German law?

Mr. Thompson: The German law, yes, and in fact—

Mr. McDonald: Yes. I personally favored that before the Efficiency Com-

mission in Springfield a short while ago. But the fear I have is that it requires so much time to put into operation the law that he suggests that it is going to be a long time before we arrive at results.

* * * *

Mr. Thompson: Is there anything further you would like to say about the conditions in the Illinois coal fields?

Mr. McDonald: I feel this way, that under the present arrangement, largely by reason of the competition between the companies in this state and the companies in other states, there is a very great waste in the present method of producing coal. Some of the mines in the state are only getting out approximately 60 per cent of the coal, where in reality they should get out at least 90 per cent of the coal. There is a great waste in the resources of the country in that way. This is due, I believe, in large measure to competition and the desire to get profits as early as possible after the mine is sunk, and the desire to get the coal as cheaply as possible, without regard either to the product or to the welfare of the miners employed in the mines.

WASHINGTON STATE AT THE EXPOSITIONS

The State of Washington is to have mine exhibits at the San Francisco and San Diego Expositions this year. A fine collection of the state's minerals has been made. The College of Mines of the University of Washington is preparing a type exhibit of the rocks of the state for a collection to be sent to each of the high schools of the state. The collection is to be accompanied by a bulletin

written by the staff of the College of Mines. The bulletin will serve as a textbook for the use of students and all others interested in the geology and mineral resources of the state.

MONTANA SEEKS RADIUM

The geological department of the University of Montana is testing ore samples with a view of discovering radium in that state. The tests are being made with new apparatus recently installed. Thus far but one specimen of ore examined has shown traces of radio activity, this having been received from Princeton, Mont. Slight traces of such activity were noted.

ONE THIRD LESS IRON ORE MINED

The production of iron ore in the United States during 1914 fell short by 33 per cent than total amount mined in 1913, according to the Geological Survey. The estimated production for 1914 is between 41,000,000 and 42,500,000 long tons of iron ore against 61,980,437 long tons mined in 1913.

In the Lake Superior district, where about 85 per cent of the domestic iron ore is mined, the average decrease in production was about 37 per cent, thus indicating a total production for that district of about 32,915,000 long tons in 1914, compared with 52,518,158 long tons mined in 1913. The shipments of ore from this district apparently decreased about 34 per cent, and accordingly the shipments should approximate 32,790,000 long tons in 1914, compared with 50,168,134 long tons in 1913.

MINE TAXATION

Report of the Committee as Approved by the Seventeenth Annual Session of
the American Mining Congress, Phoenix, Ariz., December 7-11, 1914

*Mr. Chairman and Members of the
American Mining Congress:*

Gentlemen—The committee on Mine Taxation of the National Tax Association, in reporting to the Association's meeting, held at Buffalo in October, 1913, said:

The subject submitted to the committee is an exceedingly complex one, and on many of the phases the committee feels the need of longer time for study and investigation. For that purpose it is recommended that the committee be continued.

It appears that the action heretofore taken by the American Mining Congress as such, and by its individual members in their respective localities, has begun to bear fruit; and has resulted, at least, in persuading the members of the National Tax Association, as well as the various assessors and tax commissioners who are members thereof, that the taxation of mines is a subject worthy of careful consideration, having its own peculiarities, requiring special treatment and of sufficient importance to justify a standing committee.

It is the belief of this Committee that mining claims, for taxation purposes, may always be safely divided into two distinct classes, *i. e.*, nonproducing mining claims and producing mining claims.

NONPRODUCING MINING CLAIMS

No matter for what reason a mining claim may be nonproductive, it should be classed as a nonproducing mining claim, and no value attached for taxation purposes, by reason of the existence of known mineral contents, unless that mineral is being actually marketed at profit.

The Legislature of different States have shown surprising variation when guessing (it can be termed nothing else) at the value of nonproducing mining claims for taxation purposes; for instance, in Montana nonproducing mining claims are assessed at a value of \$5 per acre, while in Nevada they are assessed

at \$50 per acre, and in another state, under the tax law, it is provided that the nonproducing claims, when owned by a corporation, may be assessed at a value represented by the capital stock of the corporation.

One of the members of this Committee, in a paper submitted at the last convention of The American Mining Congress, suggested that the proper criterion for the assessment of nonproducing mining claims was the price at which the Federal Government sold the ground to the patentee, to wit: \$5 per acre; and submitted the query that if this was not proper, in fact the only, criterion of the value of such ground, then what was? This committee has neither seen nor heard a direct answer to this query; but the committee of the National Tax Association, above referred to, did say:

The mineral content and value of unexplored and undeveloped ore bodies, patented mines and mining claims is frequently so uncertain that for this class of property there is ample justification for conservative treatment, and even for postponing the full possible claim of the State until actual knowledge of the situation can be obtained.

Along this same thought the committee notes an expression in the report of the Wisconsin Tax Commission for 1910, where it is stated:

It would be more logical and tend to better administration if the lands (nonproducing mining claims) were assessed without regard to the minerals.

This committee appreciates that nonproducing mining claims ought to be assessed and a reasonable tax collected therefrom; but since no man can tell whether a nonproducing mining claim is of any value, until actual operation begins, it submits that the only fair and reasonable rule is as follows:

Nonproducing mining claims should not be assessed upon a value higher than adjacent land, *not* assessed for mining purposes, is assessed.

PRODUCING MINING CLAIMS

It is safe to say that the producing mining claims will pay the great bulk of the mining taxes in any State, wherefore this committee has devoted more attention to the question of the proper basis of taxation of producing than of non-producing mining claims. There appear to be two well defined theories for the taxation of producing mining claims. One, an ad-valorem tax, and the other an income tax.

This committee is firmly of the opinion that a tax upon the net income of producing claims is the only method which is fair to the State, in the first place, to the mining industry in the second place, and between the various producing claims of a State or district in the third place.

The vices of the ad-valorem system of taxation of mining claims become apparent upon a superficial study of the subject, and become expensive and disagreeable realities wherever and whenever the system is in vogue.

The State of Michigan, when putting a system of taxation of mines on an ad-valorem basis into operation, went so far as to employ a very competent engineer to make an appraisal of the value of the mines and mineral lands within each taxing district. This was an attempt by that State, of course, to operate the ad-valorem system upon as fair a basis as was possible to the State and the mining industry. The value of the mines to be taxed upon that system was calculated upon the following main factors:

A. Ore reserves. B. Average annual production. C. Cost of production. D. Average price to be obtained for product. E. Average annual profit, and F. Rate of interest of value of money.

It would seem at first blush, that the factors taken into consideration ought to result in a proper valuation of the mines for taxation purposes; but that such uncertainties as would render the system impracticable for taxation purposes were bound to obtain have been very closely demonstrated in a recent scholarly article by Mr. Heath Steele, of New York, who says:

No one can dispute that a stated annual income for a certain number of years has a present value easily determined at a fixed rate of interest. If this were all for a correct appraisal, I should not question the fairness of this system of taxing. But as my idea of the principle involved requires a system which takes from each in the same proportion, there must be no liability of error in the method of assessment. Working from this point of view let us take up each main factor as previously stated.

A. To arrive at the amount of ore to be considered in an appraisal of this kind we must not only consider fully developed ore but all indications for further extensions of ore bodies beyond mine openings. Here we run into difficulties much greater than are encountered in measuring developed ore. The developed ore factor is more or less approximate, but estimates of further extensions are bound to vary greatly from fact. However, these are not the only obstacles in the way of a correct statement of ore reserves. The average content of valuable minerals is a very difficult factor to determine correctly for a large ore reserve and is in most cases a guess, regardless of elaborate sampling and inferences that may be drawn as to the uniform contents within certain blocks. The best we can do is to concede that the ore reserve factor is an estimate consisting of two basic factors, both of which may be wrong.

B. The factor of average annual production not only serves to determine the length of life, but the average annual profit. If the rate of production is greater than estimated the profit will be more or vice versa. B is dependent upon A and is subject to the errors of A.

C. The cost of production may be closely estimated. I say estimated because no matter how much of a record one may have to judge from future expectations in connection with costs are no more infallible than the assumption of the ore reserve factor. This is particularly true where metals of changing value are involved, for, granting the cost per ton of ore is the minimum, a lowering of the grade of metal content will increase the cost of the metal.

D. The factor of average price to be obtained for the product is a presumption and nothing else. One man's judgment may be better than another's because he has studied the supply and demand and is conversant with all market-governing factors, but we cannot grant him the powers of a true prophet.

E. This factor, the average annual profit excepted, is the sum in all the errors of A, B, C, and D, all of which will reflect in the profit. If the average price to be received for the product is a correct assumption, so far as it relates to the average price for the whole period, the average annual profits may be the sum estimated. But the present value obtained by this calculation and the present value that may be obtained at the exhaustion of the mine with the actual annual earnings as a basis will hardly be the same. This is

particularly true with the metals that fluctuate widely in price. If, during the first half of the operating period, the price of metal should be lower than the average used, the actual present value of the property will be less than estimated. If higher prices are secured the value will be raised. A fair check will only be made when a practically uniform price prevails or the highest prices are received during the middle of the period.

F. The rate of interest is a factor that may be adjusted to suit the individual in private work. For taxation purposes the worth of money is a debatable question, but a rate should be used that will represent the actual earning power of the money without special effort. If the business is hazardous, all factors of safety will properly have been provided in the basic factors.

Here it is shown that the only calculation involved in mine appraisal for which we can absolutely vouch as being correct is the deferring of the expected annual income at a fixed rate of interest. We may have errors in each of the five main factors, together with those in the basic factors of which they are composed. I do not think that the most ardent advocate of mine taxation on a valuation basis will, if he considers the presumptive character of the data necessarily involved, contend that an equitable distribution of tax burdens can be accomplished by this method. It is impossible to value any mine correctly until it has been worked out; therefore, if we attempt to value a number of mines in a taxing district, some will surely be assessed too high and some too low.

It is because of those things pointed out by Mr. Steele that such great students of taxation as Professor Skelton, of Queen's University, Kingston, Ontario, has said:

The positive reason for preferring the tax on the output is its greater certainty. Any estimate of the value of the minerals in the ground must, it is felt, contain a large element of guess work—diligent and scientific guess work it may be, but guesswork still.

And Professor Edward A. Seligman, McVickar Professor of Political Economy of Columbia University and President of the National Tax Association 1913-14, said:

The difference between the earnings system and the ad-valorem system is the difference between publicity and secrecy, between certainty and arbitrariness, between simplicity and complexity, between precision and guesswork—in short, between modernism and medievalism.

If then, the earnings tax is to be preferred to the ad-valorem tax, the question remains. Shall it be gross earnings or net earnings? As a matter of principle it is conceded by

all writers that net earnings approach more closely to the ideal method.

If, then, an ad-valorem system of taxation of producing mines is wrong—and the experience of mining men, tax experts and college professors who have made it a special study, to say nothing of the practical demonstration of it when in operation, all show it to be wrong—then there remains but one other method for the taxation of producing mining claims, to wit, a tax upon income.

The first question to be determined upon a tax upon income is whether the whole or any portion of the gross production should be included in the valuation of the mine for taxation purposes.

There is no question in the minds of this committee that a portion of the gross should be included; and the point may be illustrated by the existing conditions in Colorado and Arizona; such being, we believe, fair examples of the results obtained and to obtain wherever the gross proceeds are considered in valuing a mine for taxation purposes.

The Colorado law provides that one-half of the gross plus all of the net shall be the value of the producing mine for taxation purposes. A couple of very extreme examples will illustrate the possibilities of this law in its operation, as between producing mines under differing conditions; for instance:

First extreme—Mine A. B. produced \$100,000 gross in given year; its entire expense was \$1,000; its net, therefore, is \$99,000. Its tax value, therefore, would be calculated thus:

One half gross	\$ 50,000
All net	99,000
Tax value	<u>\$149,000</u>
Rate 3 per cent, \$4,470; approx. 4 1-2 per cent of net.	

Second extreme—Mine C. D. produced \$100,000 gross in a given year; its entire expense was \$99,000; its net, therefore, is \$1,000; its tax value, therefore, would be calculated thus:

One half gross	\$50,000
All net	1,000
Tax value	<u>\$51,000</u>
Rate 3 per cent, \$1,530—153 per cent of net.	

Of course no mine producing \$100,000 gross per year is going to have either \$1,000 or \$99,000 net, but some figure between these extremes; however, it is a simple calculation to demonstrate what two mines producing \$100,000 gross per annum, one with a net of \$50,000 and the other with a net of \$25,000 will have a differential running against the mine with \$25,000 net (on a 3 per cent rate) of approximately 50 per cent.

In fact, in a recent case decided by the District Court of Teller County, Colorado, the actual disparagement existing between two well known mines are shown in the words of the Court, as follows:

By way of illustrating the inequality resulting in this case, I call attention to the following:

It is shown by the evidence that the Cresson Company's gross proceeds for the year 1913 were \$537,603.58; its net proceeds \$373,140; assessment under the Act 1913, one-half gross proceeds plus net \$641,941.79. The Portland Company's gross proceeds for the year 1913 were \$862,642.34; its net proceeds \$315,160; assessment under the Act 1913, one-half gross proceeds plus net \$746,481.17. It will be noted that the gross proceeds of the Portland exceeds those of the Cresson Company by over \$325,000; that the net proceeds of the Cresson Company exceeding those of the Portland Company nearly \$53,000, while the Portland was assessed, under the Act of 1913, on over \$104,000 more than the Cresson. Such gross inequality as the above cannot be avoided if the Act of 1913 is to be upheld as a valid exercise of the legislative power. It is manifestly arbitrary and unjust, and lacking in the uniformity required by the constitution.

The same results in a lesser degree must obtain in Arizona, where the law provides for the valuation of a producing claim for taxation purposes upon a basis of 12 1-2 per cent of the gross plus four times the net, using the same extreme examples that were used to illustrate the Colorado situation, it will be found that the mine with \$99,000 net will pay a tax equivalent to 12½ per cent of its net; and a mine with \$1,000 net will pay a tax equivalent to 50 per cent of its net; and in the examples illustrating the Colorado difference between the mines with a net of \$50,000 and \$25,000, there will be a differential against the mine with a \$25,000 net of approximately 8 1-2 per cent. The rea-

son, of course, that there is not such a difference between the \$50,000 net and the \$25,000 net in Arizona, as there is in Colorado, is because in Arizona only 12 1-2 per cent of the gross is used for valuation purposes. That the Colorado law works out as illustrated in the above examples and in the Cresson-Portland case, is verified by the fact that in the year 1913 the gross production of the Colorado metal mines was \$35,450,585. (U. S. Geol. Sur. 1913, p. 227.) While metalliferous mining properties were assessed for the same year \$46,042,047. (Colo. Tax Com. Rept., 1913, p. 129.) Thus it will be seen that the metalliferous mines of Colorado paid taxes on approximately \$10,600,000 more than they made in the year 1913.

Not only do states, which provide for the assessment of all or a portion of the gross and all or more of the net, offend man's natural sense of right and justice, but they likewise offend two fundamental principles of law concerning taxation which have been written into most if not all of the constitutions of the various states of the union. These constitutional provisions vary in their terms, but the sense of them is the same and the following excerpts from a state constitution will serve to illustrate the principle that is written into most of them:

- (a) All taxes shall be uniform upon the same class of subjects within the territorial limits of the authority levying the taxes.
- (b). All taxes shall be levied and collected under general laws, which shall prescribe same class of subjects, within the territorial area for taxation.

The lack of uniformity required by such constitutional provisions, the gross inequality inhibited, and the absurdity of such a system of taxation are all, at once, manifest from the above examples.

Everyone knows that uniformity in taxation implies *equality* in the burden of taxation, and that all taxes must be uniform on the same class of property within the jurisdiction of the authority levying and collecting taxes and that this uniformity must be such as to result in equality of the burden.

There can be no claim of uniformity or equality where a profitable mine pays taxes at the rate of 4½ per cent of its

net, and an unprofitable mine pays taxes at the rate of 153 per cent of its net.

Not only this, but it will be readily seen that a system which taxes both gross and net must of necessity result in a double taxation; for instance, where the taxing scheme is to tax one-half the gross, plus all of the net, then one-half of the net is twice taxed; *i. e.*, first, when it is taxed, as net, and, second, when it is taxed as a portion of the gross.

The same Committee of the National Tax Association, in their report, say:

We are opposed for the class of mines now under consideration to be so-called gross and net methods of taxation. Gross income bears no uniform relation either to net income or to value. A mine with a gross income in any year of \$100,000 may have lost money and have no more ore to mine, or it may have made \$50,000 and have thirty such years to look forward to in the future, or it may have made \$10,000 net and have five years of similar business to look forward to in the future. With mines of very short life the gross income method tends to make the tax excessive. With mines of long life and relatively low cost of production, the method tends to yield an insufficient tax. As between mines, it is almost always unjust and unequal.

CONCLUSIONS

If this committee is right in its conclusions that an ad-valorem system of taxation is not applicable to the mining industry from any angle; and that an income tax, which includes any portion of the gross, is wrong for the reason assigned; then it remains only to determine what is a proper system of taxation on the net alone.

Upon this question men may conscientiously differ a great deal. This Committee feels, however, that a few salient principles, for such taxation will be accepted as fair to all concerned, *i. e.*:

(a) That a uniform system for determining what is meant by the term "net proceeds" should be adopted by the law-making power.

This is a principle which, following the Interstate Commerce Commission, has been written into the laws of many

of our States that have provided Public Utility Commissions. These Commissions are required to adopt uniform systems of accounting, so that the amount earned by each Public Utility in the State may be shown. There seems no good reason why a uniform system of accounting cannot be prescribed for the various mines of a state.

Respectfully submitted,

L. A. Young,
H. A. E. Chandler,
John Wellington Finch,
Will L. Clark,
D. L. Webb, chairman.

FALLING OFF IN COPPER

According to figures and estimates prepared by B. S. Butler, of the United States Geological Survey, the copper production of the country for 1914 will show a marked falling off from that of 1913. At an average price of about 13.5 cents a pound, the 1914 output has a value of \$152,400,000, compared with \$189,795,000 for the 1913 output. The large decrease in production in 1914 was due, it is claimed, to curtailment of production during the latter part of the year on account of the reduction in tonnage exported to Europe.

After the outbreak of the European War copper sold considerably below the yearly average, but toward the close of the year the price showed notable improvement.

New Mexico and Michigan are the only two states recorded in the report as showing an increase in copper production over the figures for 1913. Arizona, Montana, Nevada, California, Tennessee and Alaska all show a decrease, while Utah is reported to have shown practically the same figures for both periods. Arizona continues to hold first place as the state producing the greatest number of pounds of the metal, with an output of 380,000,000 pounds.

EXCERPTS FROM PRESIDENT'S ANNUAL ADDRESS

BEFORE THE 17th SESSION OF THE AMERICAN MINING CONGRESS
PHOENIX, ARIZONA, DEC. 11, 1914

BY MR. CARL SCHOLZ, CHICAGO, ILL.

The aim and purpose of the American Mining Congress has been placed before the membership and mining interests so often in recent years that it becomes unnecessary to reiterate them now. There is no doubt that the need for this organization has become greater, that its efforts are more appreciated, and that it occupies a stronger position now than at any previous time. That its good work is valued by others than the metal miners of the West is evidenced by the active interest taken in its work by the coal mine operators, more particularly since the Chicago meeting of 1911.

It may be appropriate at this time to state that the coal operators joined the American Mining Congress because they felt it was the best organization in existence to carry out the work in hand, having an established standing and working machinery. Efforts to start cooperative work among the coal operators had failed and The American Mining Congress was considered the best organization which could be helpful to the coal mine operators, as it had been in the metal mining business.

It has been hinted that some of the metal miners felt the coal people were trying to monopolize the Mining Congress, but let me assure you now that such is not the case. Mining is mining, whether the product be coal or gold or ore. Our interests are identical, whether the miners are located in Arizona or Pennsylvania. The chief topic of this address; therefore, is to urge cooperation and combined efforts toward improvement in the mining industry, irrespective of the location of the mines or the character of their product.

The methods of modern business within the short time of our experience have undergone great changes. The ad-

vance from the tallow dip to the Tungsten lamp in the lighting of our homes may be considered a fair comparison. In the first half of the past century the perplexing question of big business had not made its appearance. When owners were coworkers there was little need for legislative regulation or supervision. Man had not specialized upon a single occupation or depended solely upon it for his livelihood. Trade unions had not restricted the working hours or output of individuals. The relations between employes and employers were closer, and personal equations were more pronounced. There was little need for contracts and intricate agreements—a man's word was his bond. I do not intend to convey the impression that modern business is altogether bad, but it certainly is different, and to some it may seem better. The question we must naturally ask ourselves is, have we contributed our share toward the solution of these great problems which necessarily follow in the wake of tremendous development such as this country has undergone. We have a different people to deal with and a different government to regulate our affairs; therefore, cannot look to other countries for precedents to follow. We have business varying from the smallest unit of the single prospector to the largest mining corporation, with many grades between these two. To properly protect these great varieties of investors and workers, to give each his due share, is an undertaking of the greatest importance.

Mining in a measure is the administration of a public property insofar as it is an estate not created by man and which cannot be replaced once it is removed or used. Geographical lines, so sharply drawn for political purposes, must be lost sight of in mining, because

the different states not containing any mineral resources are dependent upon their supply from the more favorable sections. Unlike the manufacturing or farming industries, the sources for mining cannot be shifted, and yet its products are needed everywhere. The enormous coal deposits of the far Northwest are of little interest to the state of New York as long as there is an available coal supply in Pennsylvania, but New York is concerned in the situation of its present coal supply because if it is exhausted sooner by waste, that section of the country will have to depend upon a supply located elsewhere, which will be more costly to obtain. The sections with small or no mining interests are usually large consumers of mining products, and the metal manufacturing sections with their established population and industries depend upon the fuel and ores of the mining states for their very existence. Mining, therefore, is distinctly an interstate business and of interstate value. Some regulation has been considered in this respect; for instance, in the state of Oklahoma in fixing a minimum price at which gas or oil from its wells should be sold.

I am not competent to speak authoritatively on the great amount of mineral resources available, but I have often endeavored to reconcile the statements published by the United States Geological Survey on the vast amount of coal available in certain fields with which I am quite familiar. These statements refer to all the coal in existence without distinguishing as to the cost of extraction or whether actual conditions may make its mining impossible; in fact, all government reports are silent on this point, and the ordinary reader naturally believes that the billions of tons of coal available can be produced at no greater cost than the present supply. This cannot be true, and sooner than the average man believes we will be forced to recognize the fact that even the largest coal fields are being exhausted very rapidly and that the remaining coal while available will cost many times over their present cost of production.

We can only speak with words of the

highest praise of the work accomplished by the Bureau of Mines during its short existence, and at the same time decry the limited support which this bureau receives from the national government. The appropriations are too small to even investigate the physical features of mining, and unfortunately the bureau is not in a position to be of any assistance or even investigate the economic sides of the industry. The only statistics collected now deal with the mine accidents, and the only information on economics is collected by the census every ten years and the information when furnished two or three years later is of practically no value on account of the great delay. Other branches of the government do a great deal for their constituents. I have in mind the crop reports which are collected by the Agricultural Department largely by telegraph and which are furnished very frequently to the farmers and dealers in farm products, to the great advantage of both.

Congress convenes at Washington today, and there is necessity for aggressive and constructive legislation. Mine operators have been contenting themselves more or less with defensive measures, but I wish to urge not only for the best and strongest representation at Washington and at the various state capitals but also for the introduction of measures deemed necessary to the best interests of mining.

At this occasion I want to make clear the oft misunderstood purpose of the maintenance of the Washington office by the American Mining Congress, some members having expressed themselves as not being in favor of maintaining a lobby, feeling that it was degrading to the Congress and not worthy of the industry. This attitude and misconception must be corrected. Our representation at Washington is not for the purpose of unduly influencing Congress in our favor or obtaining concessions by unfair means. It is there for the purpose of aiding our lawmakers in the protection of the industry and advising them of our needs. With all due deference to the make-up of our state and national legislative bodies, it is not reasonable that we

should expect of them a thorough knowledge of all affairs of this great country and the needs of the great multiplicity of interests and industries therein. It is not only a necessity but a duty of each industry to have at convenient reach representatives who may inform and consult with congressmen on matters pertaining to their respective lines of business. Every day new problems arise, regarding which the congressman removed from his home conditions cannot be kept posted unless he is constantly informed by a reliable source. It is not reasonable that we should expect other interests to champion our cause, and I would recommend that each mine owner, even if he is not a member of this organization, advise his respective senator and congressman that the American Mining Congress is the representative of his respective company in matters pertaining to the mining industry and will gladly furnish correctly and concisely such information as may be called for.

I wish to invite your especial attention to two subjects which are going to be discussed at this session and which I regard of the greatest importance: namely, the arbitration of industrial disputes and the progress of the Workmen's Compensation Committee. The former is a subject little discussed up to this time. Under our Constitution no compulsory measure can be enforced. It must remain a matter of honor between the two interests, to avoid industrial conflicts. It is not fair to ask employers to yield to unreasonable demands of employees because of any special or unusual business conditions existing, or by this denial, bring about business interruptions or even bloodshed. Likewise, it is not proper that employers should take undue advantage of their men under stress. Such actions encourage discrimination or other unreasonable attitudes at opportune occasions. Interruptions to mining do not end by affecting the employers and mine owners; the damage to the consumer and user of mining products may be much greater. I need only call attention to the expense which our coal consumers are put to every two years by storing vast quantities of coal in the face of uncer-

tainty regarding the renewal of expiring wage agreements. Appeal to the patriotic spirit is not a cure, and it is proper that we duly consider the best solution of the subject by discussing it from every viewpoint and form some basic opinions.

State legislation is more or less contagious—if one State considers a certain measure, and particularly one which meets popular favor, other States will endeavor to adopt it. The Workmen's Compensation Bills have furnished their share of opportunity to the spectacular politicians by supporting this popular legislation, frequently under the disguise of desiring to appear more progressive and liberal than neighboring States. Many bills have been proposed which are unworthy of the cause they represent, and modifications will be proposed at the coming sessions. There is no question but that each industry should bear the cost of its toll of life and injuries. The injured workmen or their families should not be dependent upon charity. There can be no difference between the services of a soldier who draws a pension for giving his services to his country to defend it in case of war for, perhaps, only a short time and the workman who gives his entire life to build it up. The employer, to meet these expenses, must be placed in a position to earn the cost of this protection. The schedules of compensation must be fair to both sides, else the employers will not place themselves under the acts, which are optional and under our Constitution cannot be made compulsory. The present method of litigation is wasteful, deprives the needy at the time when assistance is of the greatest value, often giving the greater sums to those least entitled, at the expense of those really deserving. This condition should not be permitted to continue. My own opinions differ somewhat from the expressed view of our Committee, insofar as I believe the workmen should contribute a part of the cost of this insurance. It will make the plan more valuable to them. Their self interest will prevent unfair payments, because increases would have to be borne in part by themselves. Their ability to contribute can only be measured by the

readiness with which the organized men pay dues, an assessment of about two per cent of their gross earnings being given to the union fund of the organized coal fields. Should they contribute an equal amount to the Compensation Fund in addition to the equivalent added by the employers, we would have a fund of three to three and a half cents per ton of coal, which is considered adequate at this time. Such contributions would entitle them to representation in the administration of the fund, which should be kept out of the reach of political influence.

The unusually depressed condition of the mining industry prevailing at this time has required more than the ordinary attention and time of the operators and mining officers, and has prevented many from more active cooperation with this work. Your directors and officers have not been able to give as much time to this work as was expressed at the Philadelphia convention; nevertheless, we have advanced, and I take this opportunity to thank the directors and members for their cordial and generous support. Many promises have been made, which will be handed as a heritage to my successor in office, who I am sure will be able to convert them into cash as soon as the financial situation improves, and I feel that the outlook for the Mining Congress is more encouraging now than at any time since its organization.

MINE INSPECTOR LOSES LIFE

Government Mine Inspector Evans, at Coal Creek Mine, near Fernie, B. C., was overcome by gas and died, following an explosion in a mine in the Crow's Nest Pass district, January 2. Inspector Evans entered the workings with rescue apparatus. He was removed unconscious and failed to revive. The workmen had had notice of coming danger and all got safely out. Three men who were at the mine entrance were badly but not fatally injured, the explosion being followed by a great volume of dust and flame. A horse at the mine mouth was blown to atoms and buildings in the immediate vicinity were completely demolished.

SHORTAGE IN COAL PRODUCTION

The nation's coal production for 1914 fell short by 60,000,000 short tons, the total coal output for the preceding year, according to reports made to the United States Geological Survey. The total coal production for 1914 is estimated at 510,000,000. Practically all of the decrease was in the output of the bituminous coal mines. Pennsylvania's production of anthracite was practically that of 1913.

The report states that in the year just ended about 1,000,000 tons of anthracite coal, principally nut and steam sizes, went into storage, so that the quantity of anthracite actually marketed was approximately 1,000,000 tons less than that for 1913.

Depression in the lumber trade of the Pacific northwest and the increasing use of petroleum for fuel in California and other western states are suggested in the report as possible reasons for reduced production of coal in the west. The principal decreases, however, according to the report, were in the coking districts in the bituminous coal fields of the east. In Pennsylvania alone, the report says, the estimated decrease in production of bituminous coal was between 20,000,000 and 25,000,000 tons. The larger part of this decrease, according to the report, was in Fayette and Westmoreland Counties, in which are located the Connellsville and Lower Connellsville coking districts.

KENTUCKY INCREASES COAL OUTPUT

Kentucky's coal output for 1914 is approximately 20,000,000 tons, a slight increase over the production of 1913, which was 19,616,600 tons. The development in Eastern Kentucky is responsible for the increase as there was a decline in the Western field. Kentucky, with the exception of West Virginia, is the only southern state to show an increased output. Under less favorable conditions, Kentucky's showing would have been especially gratifying. The outlook for Kentucky as a great coal producing state is bright.

METALLURGICAL RESEARCH AND MINE SAFETY STATIONS

The Foster Bill, H. R. 15869, will be called up for consideration by Dr. Foster, chairman of the House Committee on Mines and Mining on Monday, February first.

Every effort will be made to secure the enactment of the bill for which a two-third majority is required. The bill is as follows:

A BILL

To provide for the establishment and maintenance of mining experiment and mine safety stations for making investigations and disseminating information among employes in mining, quarrying, metallurgical, and other mineral industries, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of American in Congress assembled, That the Secretary of the Interior is hereby authorized and directed to establish and maintain in the several important mining regions of the United States and the Territory of Alaska, under the Bureau of Mines and in accordance with the provisions of the Act establishing said bureau, ten mining experiment stations and fifteen mine safety stations, movable or stationary, the province and duty of which shall be to make investigations and disseminate information with a view to improving conditions in the mining, quarrying, metallurgical, and other mineral industries, safeguarding life among employes, preventing unnecessary waste of resources, and otherwise contributing to the advancement of these industries.

Sec. 2. That the Secretary of the Interior is hereby authorized to accept lands, buildings, or other contributions from the several States offering to cooperate in carrying out the purposes of this Act.

BRIEF IN SUPPORT OF H. R. 15869

There was recently in the United States a scattering epidemic of the foot and mouth disease among cattle, resulting in a rigid quarantine being established by the Department of Agriculture and the destruction of several hundred animals.

Immediately the Congressional machinery was started to reimburse the farmers for their losses and to appropriate funds to stamp out the disease and prevent its recurrence. Members of Congress suggested bills providing for this aid to the agricultural industry.

In the bill making appropriations for the Department of Agriculture for the next fiscal year, now before Congress, the committee has authorized an appropriation of two million, five hundred thousand dollars to take care of this situation.

In one of the best known metal-mining districts of the United States, in addition to the number of men killed by accident, in the year 1912, there were seven hundred and twenty deaths from miners' consumption, out of about 7,200 employed, ten per cent in one year. Ten years of such conditions wipes out an important mining camp. This almost unbelievable condition has apparently existed for many years with the loss of hundreds and hundreds of men. It is also stated that at the present time from thirty to sixty per cent of the miners employed in mining operations in this district now have tuberculosis.

In spite of this condition, and we know that miners' consumption is an occupational disease caused by stone dust in the mines, and largely preventable, there is no great national agitation and there has been no particular suggestion from Congress that an immediate appropriation should be granted to investigate the causes of this disgraceful condition and to obviate them.

In one instance you have the deaths of cattle through a highly contagious disease, the great National Government stepping in with \$2,500,000 to pay for the ravages of this disease and to exterminate it, and in the other you have the slaughter of human beings with no particular remedy or aid being suggested.

The point to all this is that agriculture is the best known and best cared for industry in the entire United States and that the mining industry, despite the fact that it is second in importance as a basic industry, is the worst understood and the least aided.

It is not that Congress intentionally discriminates against the mining industry; it is rather that every man connected with agriculture has been alive and energetic to any aid that the Federal Government might give to their industry, and, I regret to state, the unwillingness of the men in the mining industry to present their cause to Congress.

With the creation of the Federal Bureau of Mines some advance has been made, but the industry is still far behind agriculture in Federal recognition.

Now here is your chance to help:

There is now pending in Congress a bill to establish in the larger developed mining regions of the country fifteen movable mine-safety stations for rescuers, with a view to advancing more rapidly and in a more satisfactory manner the mine-safety educations and mine rescue work under the Bureau of Mines, and to establish fifteen experiment stations in important metal-mining regions in public land states, with a view to the advancement of the mining industry in those regions.

Deaths in the mines.—The Bureau of Mines finds that the progress it is making in the saving of life is extremely slow and it is one of the purposes of this bill to expedite this humanitarian work. In the year 1913, in the mines and quarries of this country, 3,651 men were killed, a death rate of 3.49 for each 1,000 employed.

No one likes to estimate the money value of a human life, but at times it becomes necessary to do this, especially in working out the economics of com-

pensation acts. It is a reasonable estimate that during the past ten years more than 30,000 men have been killed and more than 100,000 seriously injured in connection with the accidents in the mining industries of this country. It is impossible to estimate the number who have suffered from bad health conditions in many metal mining, tunneling, quarrying metallurgical, and other mineral industry plants. It is impossible to estimate the number of men with health shattered through these conditions who have had to give up their work for years before their natural time or the number of dependents who have suffered thereby.

If it be assumed that each human life is valued at \$3,000, it will be seen that the deaths alone in the mines have cost in the ten years \$90,000,000.

If each of the 100,000 seriously injured lost twenty days at three dollars per day, a reasonable assumption, this represents \$6,000,000 lost from this cause.

Whatever may be the value put upon human life in arranging for a reasonable compensation, these losses of life and labor are national in their extent and character and fall ultimately upon the general public as representing the consumers of mineral products.

A comprehensive investigation of conditions effecting the health of workers is one of the urgent existing needs of the mining industry. Such investigation would effect the health condition of one and a half million men employed in these several phases of the industry, and no one familiar with conditions will for a moment question its importance. In conducting it, the Bureau of Mines would have the active cooperation of the Public Health Service, which would study the different ways in which mine conditions affect the health of employees, while the Bureau of Mines would seek to ascertain the existence and the causes of bad health conditions and the methods of improving the same.

A large proportion of the men entering the mines in the United States each year come from the farms and villages of different European countries; they

are unfamiliar with our language, our institutions, and our laws, and know little or nothing of mining.

A majority of the men now working in the coal mines of the United States today speak and read but little English. It is therefore difficult to reach these men through publications, even when the latter are prepared in the most simple and elementary manner.

The Mine Rescue Cars.—The plan followed most successfully by the employees of the Bureau of Mines in reaching and interesting these men is through giving actual working demonstrations in mine rescue; first aid, and other safety measures and methods, and the giving of lectures illustrated with lantern slide pictures which contrast the safe and the dangerous methods. Each of these pictures used has a short, one line description under it in four or more different languages most common among the miners. In these lectures and demonstrations, local interpreters are used at intervals as the need for them may appear.

Work of this kind develops a new interest in the safety work among the miners, and following the movements of each of the existing rescue cars this interest on the part of the miners is shown in their call for the publications which treat of the mine-safety work.

So far as it has gone, this educational work is assuredly developing safer and better mining, and the leaders among the miners express the belief that if carried forward on a larger scale and in a more thorough manner, the work cannot fail to develop also better citizenship among these miners.

The work of the states in carrying out their part of this general program in mine safety is being carried forward in a reasonably satisfactory manner. The states are already expending in their inspection and police supervision work more than the Federal Government is expending in all of its investigations in behalf of mine safety. Thus, for example, a single state, Pennsylvania, maintains a well-organized and efficient inspection force which includes a chief and fifty district inspectors; it expends in the maintenance of the work \$213,000

per annum, paying its district inspectors an average compensation of \$3,000 each in addition to traveling expenses. All of the other coal-mining states maintain a system of inspection.

The Proposed Experiment Stations.—There are located within the boundaries of the several public-land states large bodies of low-grade ores of different types for the efficient treatment of which there are no known methods. There are other large deposits that are being worked in accordance with methods that are highly wasteful of valuable mineral products. On the public lands in these states there are many mineral deposits concerning the value of which little is at present known. These and other associated problems, general in character, will be investigated by the several mining experiment stations to be established in such regions, and it is believed that the results of such investigations will be not only beneficial to the industry but also to the general public.

Mining is usually regarded as an industry made up mainly of the operation of a few large, profitable properties, such as old Comstock mines in Nevada, the Treadwell mine in Alaska, or the Homestake mine in South Dakota. It is usually considered to be an industry controlled by a few parties, the owners of which large properties would gladly avail themselves of an opportunity to unload on the National Government the cost of conducting researches in which they are particularly interested. Therefore it is usually considered as an industry which should be allowed, and even required, to take care of itself. These assumptions are far from correct.

The facts of the situation are: These large, profitable properties are few in number; that, so far as known, their owners have never joined in a request for Government appropriations to aid the mining industry, nor have they been given any special consideration either in the establishment or in the plans of the Bureau of Mines. They have neither asked for assistance, nor have they endeavored to unload upon the Government any investigations of their own. On the contrary, at the request of the Bureau of Mines, a number of them have

expended considerable allotments of their own funds on investigations which promise to be useful not only to them, but to other less important mining developments in which they were in no way involved.

While the number of large mines in this country is small, there is a large number of small mines. The records show that in the country as a whole there are about 40,000 coal mines, metal mines, and quarries and about 170,000 oil wells, operated to a smaller or larger extent in connection with the mining operations. In addition to these there is a large number of operating plants connected with the smelting and other metallurgical operations and various mineral industry operations in different parts of the country. Few seem to appreciate the importance of helping those who hold these small properties to find methods of operation by which they can be worked at a profit instead of being helplessly transferred to a few large corporations who alone may have the funds for developing the processes that will make such operations possible.

What the Federal Government is Doing for Agriculture.—Congress is now appropriating as an aid to agricultural advancement nearly \$28,000,000 per annum, while mining is receiving through the Bureau of Mines and the United States Geological Survey less than \$2,000,000. The per capita contribution from the people of the United States for the advancement of agriculture amounts to twenty-eight cents and for mining two cents.

In referring to the aid given agriculture and mining by the Federal Government, Franklin K. Lane, Secretary of the Interior Department, recently said: "For a number of years Congress has been appropriating annually for the maintenance of experiment stations in behalf of agriculture in the several states an aggregate sum of nearly \$1,500,000. In addition to this, in the public land states the Federal Government has expended during the past 12 years, \$77,-

150,180 in the reclamation work of making available additional agricultural lands; and of this sum more than \$8,000,000 has come from the proceeds of the sale of mineral lands in the public land states.

"I mention these expenditures with no feeling other than that of approval; but in passing, I may call attention to the fact that the mining industry in this country does not appear to have had a square deal in the way of public recognition and aid. And in speaking of the mining industry, we need not especially concern ourselves about the profits of the few large mining companies. There are the many thousand small mine owners and prospectors struggling with difficult problems, there are the safety and welfare of the 2,000,000 employes in the various mining and mineral industries, and there are the other great national problems of waste in these industries, all of which should have our serious concern, and should have also the benefit of extended national inquiry and scientific investigation."

THE ORIGIN OF ONYX

When waters charged with carbonate of calcium derived from limestone are allowed to evaporate they deposit their load in the form of sinter or tufa. This process can be observed at many thermal and "petrifying" springs and also in the formation of stalactites and stalagmites in limestone caverns. In this way large masses of compact carbonate are formed, some of them of great beauty. The so-called "onyx marbles," of which the Mexican "onyx" is a familiar example, are formed in this way. Some rock of this class is stalagmitic, in caverns, and some of it is formed by springs. Its variations in color and texture, to which its ornamental character is largely due, are commonly produced by impurities or inclusions, such as oxide of iron, or even mud and clay.—U. S. Geological Survey Report.

ANNUAL REPORT OF BUREAU OF MINES

SOME PERTINENT POINTS FROM LAST YEARLY STATEMENT

By DIRECTOR J. A. HOLMES

The annual report of Director Joseph A. Holmes, of the U. S. Bureau of Mines, made to the Secretary of the Interior for the fiscal year ending June 30, 1914, has much of value to all those connected in any way with or interested in Mines or Mining. The following are brief extracts:

The loss of life from the falls of roof and coal and from mine caves in the mines of the Country during the past five years has been more than 7,000 killed and more than 25,000 have been seriously injured.

From the lack of proper safety appliances in the mines of this country more than 3,500 men have been killed and nearly 20,000 have been seriously injured during the past five years.

Not only have many men been killed or injured from what are believed to be necessary electrical accidents in mining and other branches of the mineral industry, but indirectly electrical apparatus has been responsible for mine explosions and mine fires that have extensively destroyed both life and property.

The improper use of explosives and the use of improper explosives have directly or indirectly caused a large share of the fatal accidents and serious injuries to the men working in the mining, quarrying, and tunneling operations of the country. But fully as serious as the killing and injuring of several thousand men from this cause during the past five years has been the injury to the health of the miners from the poisonous gases given off by the improper explosives used.

In the metallurgy of iron and steel alone there are more than 150,000 men employed; 30,000 to 35,000 persons are injured and a considerable number are killed during each year. In all those branches of the mining industry that

are conducted above ground there are 1,300,000 employes, and not less than 100,000 persons are injured and a considerable number killed each year.

It is a reasonable estimate that the present waste, in large measure unnecessary, of mineral resources amounts to a national loss of not less than \$1,000,000 a day.

In one respect, at least, the consideration of mineral waste has a basis quite different from the consideration of agriculture wastes. Our crops represent an annual production from a reasonably permanent soil; our forests may grow again though a much longer period of time is required; and the soils themselves may be reproduced from the subsoil and the rock beneath. But of our mineral resources we have only the one supply. This supply is to a considerable extent destroyed in use, and at the present increasing rate at which we are using and wasting it our one supply of a number of these resources will be either exhausted or largely depleted while the nation is yet in its youth.

The United States produces 63 per cent of the world's petroleum, and the capital invested in the industry in this country is nearly half a billion dollars.

Practical petroleum operators estimate the petroleum waste or losses in drilling, and the development of oil fields, in storage, and transportation, to be not less than \$50,000,000 per annum, and admit that a large part of this loss is preventable.

A careful estimate indicates that in the mining of 600,000,000 tons of coal during the last calendar year there was wasted or was left underground in unminable condition 300,000,000 tons of coal. As a result of a careful preliminary inquiry it is believed that more than one half (300,000,000 tons of coal) of

this yearly waste is preventable under existing economic conditions. But the bare statement of enormous losses does not, perhaps, express the most important part of the situation, which is that the coal we are now using and wasting represents the cream of our supplies, namely, the coal that is the best, is most cheaply and easily mined, and is nearest the great centers of industry.

No better illustration could be given of the contrast in the treatment of these two great national industries (Agriculture and Mining) than the fact that in spite of this lagging behind of the mining industry during this 10-year period the National Government expended for the reclamation of agriculture lands in these public land States not only all of the money received from the sale of public lands for agriculture purposes, but also nearly \$7,000,000 received from the sale of mineral lands in these States.

Agriculture is much the larger of the two industries; it embraces a large number of persons, more widely distributed, and each acting as an independent agent. Its products, supplying the country with food and clothing, bring this industry even closer to the lives of the people than does the mining industry, though the latter supplies them with the fuel that cooks their food, heats and lights their houses (which are built largely of mineral products), operates and supplies a large share of the materials and all of the machinery of their factories, conducts and operates largely their facilities for transportation and communication, and supplies more than 60 per cent of the total freight tonnage of the country. Indeed, the mining industry is in large measure the real basis of our modern civilization and national life.

Mineral products are becoming more and more indispensable to the domestic life of the people and to our manufactures, as well as being the basis of transportation facilities and of the products to be transported. Under normal conditions, as our mines become deeper and our mineral resources are depleted, not only the hazards of production but also the per capita cost of mineral products is increasing and one important purpose of the larger investigations proposed in

behalf of the mining industry is to find how the cost to each consumer may be kept down to a minimum.

The per capita consumption of coal in 1870 was less than 1 ton; in 1890 it had increased to 2½ tons; and in 1913 it rose to more than 6 tons.

Our mines can produce only the one available supply; this one supply must meet the future as well as the present needs of the nation; and a century's experience has clearly shown that our use of the more important of these resources, such as mineral fuels, precious and other metals, and potash and phosphate deposits, will increase much more rapidly than will our population.

The National Government is expending yearly for agriculture \$27,970,000; for mining \$1,967,000.

The per capita contribution from the people of the United States for the advancement of these industries is agriculture twenty-eight cents, mining two cents.

Of this contribution the per capita expenditure for safeguarding the lives of 2,300,000 employes in the mining industry is about one-half of 1 cent per annum.

ARIZONA'S ALIEN LAW UNCONSTITUTIONAL

Arizona's alien law providing that at least 80 per cent of all paid workers where more than five persons are employed must be American citizens has been declared unconstitutional by the United States District Court. The decision was handed down at San Francisco by Federal Judges Morrow, Van Fleet and Sawtelle. Justice Sawtelle read the opinion.

Attorney General Wiley Jones gave notice of appeal to the U. S. Supreme Court.

Justice Sawtelle said: "The law conflicts with the 14th amendment of the Federal Constitution which gives equal protection of the law to all. The Arizona law discriminates in favor of American citizens. If it should be enforced, another law could as well be passed providing that the employer hire 100 per cent American citizens."

LATIN AMERICA AS AN EXPORT MARKET FOR COAL

BY ALFRED THOMAS MARKS

Latin America during the year ended June 30th, last, bought coal aggregating nearly \$96,000,000—one country alone, Argentine, spending \$25,373,000 for coal of various kinds from the United Kingdom, the United States and Germany.

These figures give a fair idea of the value of the market now practically opened to our United States coal exporters.

Until the outbreak of the European war the Latin American republics purchased of Great Britain over three-fourths of the coal they imported. Of the remaining scant one-fourth the United States supplied two-thirds and Germany one-third. According to this division of the business the United States stands a rather poor second to the United Kingdom's condition brought about as much by the lack of "push" on the part of our exporters as by the superior salesmanship and more energetic business methods of the English.

But now the South American coal situation bears an entirely new and different aspect. The war has curtailed the former sources of supply to such an extent that the market in every republic of South and Central America is thrown open to our exporters to sell nearly one hundred million dollars' worth of our coal, and to make of Latin America a permanent and ever-growing export field for American coal producers.

A glance at the coal situation in the respective countries will prove of much more than ordinary interest to our United States exporters who are in position to go into this market.

No coal is mined in Argentina. The importations of coal into that country in 1913 totaled 3,912,472 metric tons (of 2,204.6 pounds each). The principal countries or origin were England, which supplied 3,502,000 metric tons; United States, 117,951 tons, and Germany the balance. In the first six months of 1914

Argentina imported 2,097,087 tons. The importations of coke into Argentina in 1913 amounted to 21,317.45 tons, of which over two-thirds came from the United Kingdom, the balance being divided between this country and Germany.

The tremendous lead of English coal in this market will be noted from these statistics. Of the over \$28,000,000 spent in 1914 in foreign markets by Argentina for coal Great Britain got about \$22,000,000, leaving the balance to be divided between the United States and Germany.

The consumers of steam coal are the railroads, electric light plants, steamship lines and industrial concerns generally. The coal generally used is Cardiff coal, which has high volatile properties. In quantities of less than 500 tons Cardiff coal is sold at \$9.50 United States currency, delivered, and in larger quantities at a decreasing price, \$8 per ton being the minimum normal price of steam coal in this market. This will easily be appreciated as a just minimum when it is considered that charter freight on coal to Argentina is nominally from \$3.50 to \$4 United States currency per ton. As is well known, the British hold on the local market has been secured by the heavy British investments in railroads and public service corporations, by the dependable quality of the coal, and by the great movement in Argentina's ports of British-owned shipping which, while giving regular and rapid service on coal deliveries, also necessitates large coaling stations for general cargo and passenger steamers. It is also strengthened by the large British coal companies having ample deposits here for all general needs.

Several months ago, when the British embargo was placed on the exportation of coal from Great Britain, many orders were diverted to the United States.

At a rough estimate, based on the opinion of people in touch with the Ar-

gentina coal market, something over 100,000 tons of American coal have been sold in the last two and a half months for delivery in that country. In order that any settled business of good proportions be done in Argentina in American coal it is highly important that a coal deposit be established in order to gather in the relatively small consumers who, although using several shiploads of coal per year, will not finance their coal purchases as far ahead as would be necessary in purchasing coal from the United States with the subsequent risk of running short because of insufficient steamship service.

A manager of such a concern some time ago ordered and received American coal for his plant, and then through the difficulty of securing a carrier a shipment was held up for several months. He was forced to buy British coal from local deposits and was obliged to pay a heavy percentage of increase in price until he contracted to supply his plant with British coal.

The steam coal carrying service from England to the east coast of South America has been excellent, and the coal is well known. In order to compete successfully in this market American producers must take these facts into consideration and prepare to at least equal the service to which this country has been accustomed.

Practically all of the gas coal imported into Argentina comes from South Yorkshire, England. About 300,000 tons per year are used. The price, delivered, is \$7.25 per ton United States currency. The Compania Primitiva de Gas a few years ago experimented with Fairmont coal purchased from the Consolidated Coal Co., in the United States, and found it very satisfactory and up to grade. Trial shipments of another American coal however, fell below the South Yorkshire and Fairmont standard in producing value.

The British coal received here is all guaranteed double screened.

The ordinary method of unloading at the port of Buenos Aires is by means of baskets. The few docks that have mechanical apparatus do not use drop buckets or chain conveyers, but load

coal in the hold into iron buckets which are shifted by cranes. The unloading expense is figured at 25 to 30 cents United States currency per ton, and is borne by the shipper selling on a delivered price, unless otherwise stated in the contract.

Many of the large coal-consuming industries of Argentina have their head offices in London, and payments for shipments are effected there.

Brazil has large coal deposits, but the scarcity of labor has up to this time prevented mining operations, except on a very limited scale. Three-fourths of the coal used in Brazil is imported, the total bought in foreign countries for the year ended June 30, 1914, having been \$18,482,303, of which the United States supplied \$2,788,601 and the United Kingdom \$15,490,137. At this time Brazil offers a market only second to Argentina, and is for many reasons our best prospective export field in South America. The Brazilians have a more kindly feeling than the Argentines toward the United States and its products, the very evident prejudice existing in Argentina being almost entirely absent here.

In general, the conditions governing the buying of coal, methods of shipment and handling, prices, etc., are the same in Brazil as obtain in Argentina.

In regard to the effect of the use of oil on coal consumption in Chile, it should be noted that of the 71,000 tons of fuel oil imported in 1912, 69,990 tons came from Peru, estimated to be worth \$2,552,000, and but 1,200 tons from the United States, worth \$44,288. By the end of 1913 these positions had been reversed, and Peruvian oil imports had dropped to 20,190 tons while those from the United States had increased to 42,200 tons.

Importations of coal into Iquique, Chile, in 1912 were 334,500 tons, and in 1913 258,266 tons. About half the oficinas of the country are now using oil instead of coal, and as others change over and adopt it the decrease in coal imports will be still greater. It is only a matter of time when coal as fuel at oficinas will be entirely superseded.

Coal and charcoal import into Iquique in 1913 from the United Kingdom were valued at \$1,803,056; from Germany,

\$28,200; from all other countries, \$85,972—the total being \$1,917,228. Australian coal is today delivered in Chile ten per cent below the English and Welsh prices.

At the beginning of the European war coal prices went up nearly fifty per cent in three days, because of the report that the British government had requisitioned all the coal in Wales. As soon as it was seen that the coal on the way to this port would be more than sufficient for local needs, as the industries were shutting down, the prices soon went back to normal.

Nearly all the boats bringing coal here load nitrate. For this reason it is not possible for a boat bringing coal and departing in ballast to offer competitive freight rates. Countries now taking Chile's nitrate of soda may enjoy practically all the trade in coal if they supply it at reasonable prices.

The principal users of coal in Chile just at this time are the west coast steamers, which take on bunker coal here. They require more than the railway, oficinas, gas plant and domestic users combined.

The rules for unloading coal here are as follows: From sailing ships at least 80 tons per day must be received by the consignee, while 250 tons is the minimum to be received from steamers. Three times these amounts are handled on certain occasions, depending upon the facilities on board, the number of lighters available and other conditions.

For the year ended June 30, 1914, the entry of bituminous coal into the port of Cartagena, Colombia, totaled \$29,018. Of this amount the United States supplied \$26,378 and the United Kingdom \$2,640. Practically all the coal imported here is for the use of the Cartagena-Colombia Railway Co. As there are no wholesale or retail dealers in coal in this country the little coal used by the general public must be bought from the railway company, which retails it at \$20 per ton.

Payments for all coal bought in the United States by the railway company named are made in United States currency on presentation of the bills of lading to the company's fiscal agents in New York.

The consumption of steam coal in

British Guiana is chiefly by steamships, railways, tramways and electric lighting plant, the city pumping station and the ice plant. The total annual imports amount to about 28,748 long tons, valued at \$160,000. Of the 28,748 tons of coal imported, 10,088 tons were bituminous and 18,660 classified as "other kinds." The latter coal, however, was Welsh steam coal. A total of 11,925 tons was imported from the United States, and the balance chiefly from the United Kingdom. Bunker or steam coal is selling at present at \$6.75 to \$7.50 per ton delivered.

Uruguay presents a splendid market for American coal producers. At the beginning of the war in Europe the coal stocks in this country were sufficient only for the needs of some two months. There was general fear of a coal famine, and the price jumped to \$22 per ton. However, substantial curtailment of consumption by large coal users, such as the railroads, and special efforts to secure imports have kept the supply nearly up to the normal level, although the price is still above the usual figures, largely on account of the higher freight and insurance rates that have prevailed since the war began.

Several cargoes of American coal have arrived at Montevideo during the last two months, while others are expected. The German Coal Company here is in the market for some 100,000 tons of American coal (Pocahontas), and the Ministry of Public Works is ready to accept bids for some 5,000 tons of American coal of the same grade and quality.

American coal has had strong opposition in this market. Interested concerns of large influence have been active in fostering the impression that American coal is an article of very inferior quality. Actual tests have disproved these assertions, and American coal has come into greater favor. At present the steam capacity of American navy coal is rated by large consumers here as 95 per cent, or as low as 90 per cent, of that of Cardiff coal. But it is held by people supposed to be well informed that this apparent inferiority of American coal is due to faulty firing, and that American

coal, if fired by American firemen who know how to burn it to best advantage, is fully equal to the best Cardiff coal.

The largest coal companies here are English concerns, which naturally do not look with favor on American competition in the markets of the River Platte. The success of this competition, once England gets into condition to again meet the demands, will be dependent on the comparative freight rates from English and United States ports.

During the year ended June 30, 1914, there arrived at the port of Motivideo 512,000 tons of coal, of which about 180,000 tons were for the consumption of the country and the rest for coaling ocean steamers. In prosperous times the importation exceeds 800,000 tons. The tramways have contracts with English importing houses, as is also the case at present with the city power house. The principal railways of the country receive the fuel they need direct from the mines. Cardiff coal for industrial establishments is sold here, on annual contract, at \$8 and \$10 per ton.

During the last twelve months Venezuela imported coal to the amount of \$52,512, of which amount England secured \$37,500 and the balance was about equally divided between the United States and The Netherlands.

WEST VIRGINIA'S MINING POPULATION

West Virginia's Department of Mines reports the state's mining population of 78,041 to be made up of 49,458 Americans and 28,583 foreigners. Of those enumerated as Americans 36,101 are white and 13,357 colored. Of the foreigners born the Italians lead with 10,276. The Hungarians come next with 4,761. Of Poles, there were 3,136, Slavs, 2,229; Russians, 1,737; Austrians, 1,472, and Germans, Greeks and English number 577, 571, and 557 respectively. Roumanians total 510. Twenty of the nationalities are represented including Turks, 45; Syrians, 115; and one lone Jew.

The four counties of McDowell, Fayette, Mercer and Raleigh, in which the Smokeless Fields are located, have a mining population of 38,279, or nearly half of the entire mining population of the state. McDowell leads with 16,558; Fayette with 12,651; Raleigh with 5,644; and Mercer with 3,426. Other counties with large mining populations are Kanawha, with a total of 7,460; Harrison, with 5,288; Marion, with 5,702, and Logan, with 4,820. The remaining 16,492 of the mining population are divided among the counties of Tucker, Barbour, Boone, Braxton, Brooke, Clay, Gilmer, Grant, Greenbrier, Lewis, Lincoln, Marshall, Mason, Mineral, Mingo, Monongalia, Nicholas, Ohio, Preston, Putnam, Randolph, Taylor, Upshur, Wyoming and Wayne.

WEST VIRGINIA'S MINE FATALITIES

Fatalities in the coal mines of West Virginia during 1914 number 555. Of this number 183 deaths resulted from the explosion at Eccles in April. In 1913 the death loss numbered 335. Of the total, not including those killed at Eccles, the greatest number of fatalities were caused by falls of roofs of coal. The death rate including those killed in the Eccles disaster, was seven for each 1,000.

AMERICAN INSTITUTE OF MINING ENGINEERS' MEETING

The American Institute of Mining Engineers will hold its annual meeting in New York city, February 15-18, inclusive. The sessions will be held in the Engineering Societies' Building. The meetings will begin at 2 p. m. on February 15. The annual business meeting will be held at 10 a. m., February 16, and at 7 p. m., February 16, the annual dinner will be given at the Hotel Astor. Meetings of club alumni will be held. A number of New York clubs have extended their privileges to the visiting members.

MINING IN PENNSYLVANIA

Governor John K. Tener, of Pennsylvania, had something to say in his annual and concluding message to the General Assembly of his State that bears importantly on the coal-mining and coke-making industries. It is worth while for our readers to know what the Governor said and recommended, because he said it as representative of the public opinion of the greatest coal-producing territory in the world, and more particularly of the United States. Pennsylvania, the first State in which the coal mining industry was developed, has ever lead in quantity of output, and this fact has given her a lead, through necessity, in legislation applying to coal mining. It is declared that the laws governing coal mining in Pennsylvania are ahead of any other self-governing community in the world, and embrace, in their contemplation, the latest features of mining science.

CONSERVATION

In his annual message to the legislature, which was also a review of his four years' administration, Governor Tener said, in part:

Pennsylvania ranks first in the production of coal, coke, iron and steel, cement, glass and leather, railroad cars and some manufactured articles. To long maintain supremacy in these lines our natural resources must be conserved.

In no way is the waste of natural resources better illustrated than by coke manufacture in bee-hive ovens. Pennsylvania, in the year 1912, had 43,347 active bee-hive ovens, which produced 587 short tons of coke per oven. For every 100 tons of bituminous coal used these ovens produced only 66 tons of coke. They destroyed 34 tons of every 100 tons. On the other hand, by-product ovens yield 73.8 tons of coke from 100 tons of coal; and they do more. They produce gas, tar and ammonia as by-products. In the year 1912 the 1,442 by-product ovens in Pennsylvania produced 1,369 tons of coke per oven. Moreover these 1,442 ovens produced approximately \$2,300,000 worth of by-products in addition to 1,974,619 short tons of coke. The value of by-products was about four-tenths of the value of the by-product coke. If the coke made in bee-hive ovens in the year 1912 had been made in by-product ovens 4,077,765 tons of coal and about \$37,500,000 of by-products would have been saved.

WORKMEN'S COMPENSATION

Regarding a compensation law, for the enactment of which a majority of the members of both houses of the legislature are pledged to vote, Governor Tener states:

It is important in every civilized community, but of peculiar importance in Pennsylvania, because of the pre-eminent position of our State in the industrial work of the world.

I strongly urge the enactment of a workmen's compensation bill, and related bills included in the report of the Labor Commission without delay.

I emphatically urge the prompt enactment of this legislation. One half of the states of the Union now have laws of this kind upon their statute books; and in my opinion Pennsylvania, the greatest industrial State of them all, should no longer hesitate, more particularly as every State surrounding and contiguous to Pennsylvania, with the exception of Delaware, has acted favorably upon this important subject. The General Assembly, having the experience of 24 states to draw from, is in a position to pass a bill that will be acceptable to employer and employe alike.

Pennsylvania is the greatest coal-producing territory in the world; producing in 1913 264,592,623 tons. The State has enacted comprehensive legislation for the protection of those employed in this industry. These laws are rigidly enforced, and violators of their provisions and promptly punished. The bituminous mining code, enacted at the session of 1911, has proved its worth in conserving the health of employes and by reducing the number of accidents in and about mines. The number of inspectors in the bituminous region has been increased to 28, and in the anthracite region to 21.

In order that the greatest possible safety may be thrown about mining operations, the department has recommended the establishment of first-aid corps and rescue corps at the various mines. The primary object of the first-aid and rescue work is to render quick service in time of emergency, and the effectiveness of the work has frequently been demonstrated. In the anthracite region there are now approximately 500 first-aid teams, comprising 3,000 men, and the number instructed in the work to the present time is about 6,000. The number of rescue corps is over 100, comprising more than 700 men, and in this work about 3,000 men have received instructions. In the bituminous region there are more than 400 first-aid teams, comprising 2,000 men, and the number instructed in the work at the present time is about 3,000. The number of rescue corps is

about 60, comprising 300 men, and in this work about 700 men have received instruction.

In all the mining districts encouragement is given to the various methods of education, such as night schools, mining institutes and vocational schools.

THE STATE CONSTABULARY

In Pennsylvania the labor unions have denounced the State Constabulary, and it is interesting to have some facts and figures as to what the value of this body of State police has been to the Commonwealth. Governor Tener says of this body:

The Department of State Police, created in 1905, consisting of four troops of two officers and 55 men each *** has rendered valuable service to the commonwealth.

In the eight years ending December 31, 1913, the members of this force covered 3,367,198 miles and made over 45,000 arrests. During this time the department received thousands of requests for assistance from all parts of the State.

Four thousand one hundred forty-six requests were received last year from district attorneys, sheriffs, judges, chiefs of police, etc. Less than 25 per cent of these requests could be complied with, owing to the limited number of men on the force. Among the arrests made from January, 1906 to January, 1914, were: Three hundred and sixty nine for murder; 102 for highway robbery; 441 for gambling; 371 for burglary; 57 for horse stealing; 774 for violations of fish and game laws; 121 for keeping immoral houses; 145 for rape; 227 for robbery; 490 for violation of the liquor laws; 125 for receiving stolen goods.

Only a small percentage of these arrests could have been made by the local authorities, as practically all of them were for crimes committed in small towns or in rural districts where they have no adequate police protection.

The necessity for an increase in the number of men and an adequate appropriation to distribute them to the best advantage throughout the state is proven by the thousands of requests for assistance that are received yearly from state and county officials, with the majority of which the department is unable to comply.

BRITAIN'S COAL EXPORTS DECREASE.

Among the innumerable effects of the war abroad is the falling off in the coal exports of Great Britain. In November, 1914, 3,280,160 tons were exported, against 5,913,404 tons in November, 1913 and 6,197,445 in the corresponding month of 1912.

PENNSYLVANIA LEADS

The total value of Pennsylvania's mineral production, according to the Geological Survey in its recently issued volume on mineral production, is more than one-fourth of the entire country.

The production of coal in 1912 amounted to 246,227,086 short tons, valued at \$34,993,123, of which 84,361,598 tons were anthracite and 161,865,488 bituminous. In 1913 the production of anthracite increased to 91,524,922 tons and that of bituminous to 173,781,217 tons. The combined value of coal produced in Pennsylvania in 1913 was \$338,220,933, an increase of \$41,227,810, or 12 per cent over 1912.

Second in importance among the State's mineral industries is the manufacture of Portland cement, the total production of which in 1913 was 28,060,495 barrels, valued at \$24,268,800, against 27,539,076 barrels valued at \$18,918,165 in 1912.

Pennsylvania ranks second among States in the total value of clay products, which increased from \$18,539,873 in 1912 to \$21,695,845 in 1913.

The Keystone State is second in the production of natural gas, the value of which increased from \$18,539,873 in 1912 to \$21,695,845 in 1913.

In the petroleum production, which was 7,963,282 barrels in 1913, an increase of more than 50 per cent in value from \$12,860,752 to \$19,805,452, the State ranks fifth.

In 1913 Pennsylvania produced \$3,733,581 worth of slate.

CANTON TO STAGE FIRST AID

Canton, Ill., expects to do herself proud in April with a big first-aid contest which promises to eclipse anything of the kind ever held in the state. The meeting for the purpose of organizing a county first aid association was scheduled for January 16. All first aid men in the county were invited. There is much enthusiasm and there is every expectation of a most successful meet, with a large attendance of miners and operators.

RECENT LEGISLATION AFFECTING THE ARIZONA MINING INDUSTRY

BY WALTER DOUGLAS, BISBEE, ARIZONA

Address Before the Seventeenth Annual Session of the American Mining Congress, Phoenix, Arizona, Dec. 7-11, 1914.

When the territory of Arizona achieved its ambition and was admitted into the sisterhood of States, its legislators sitting as members of its constitutional convention felt it incumbent upon them to evolve a constitution which would be in nowise secondary in progressive principles to that adopted by its predecessor, Oklahoma.

To this end the XVIIIth Article concerning labor deals with certain features of the social legislation which are ordinarily left to legislatures to enact.

Section I of Article XVIII directs the legislature to enact a law providing that eight hours and no more shall constitute a day's work in all employment of the State or any subdivision thereof.

Section II—that no child under the age of fourteen shall be employed in any gainful occupation, nor shall any child under sixteen be employed in mines or other hazardous occupation.

Section III declares it unlawful for an employer to contract with an employee whereby he shall be released from responsibility for any injuries sustained.

Section IV abrogates the common law doctrine of fellow servant, while

Section V leaves the defence of contributory negligence, or of assumption of risk to the jury as a question of fact.

Section VI provides that the right of action to recover damages shall never be abrogated and the amount recovered shall never be subject to any statutory limitation.

Section VII directs the legislature to enact an Employer's Liability law by which the employer shall be liable for death, or injury, to an employee due to the hazard of the employment.

Section VIII provides that the legislature shall enact a Workman's Compul-

sory Compensation law, but specifically states that it shall be optional with the employee to accept the compensation or retain the right to sue.

Section IX prohibits the exchange, solicitation or giving out of a "Black-List," and

Section X—That none but a citizen of the United States shall be employed upon public works.

Article XIX establishes the office of Mine Inspector, and directs the first legislature to enact laws regulating the operation and equipment of the mines of the State.

The first legislature of the State of Arizona convened on the 18th day of March, 1912, and proceeded to carry out the instructions embodied in the Constitution and to enact of their own volition other measures affecting the mining industry.

Considering the different laws that have been enacted in their relative importance and after two years' experience of their operation it would be proper to ascribe the first place to the Mine Inspection Bill.

It has been singularly fortunate for the State of Arizona that some time prior to the convening of its first legislature, the American Mining Congress had appointed a committee of distinguished members to compile a code applicable to the conditions obtaining in metal mines and that the rough draft of its report was available for the legislature when confronted with the necessity of framing a law as directed by the Constitution.

With a few minor and one major exception the code drafted by your Committee was adopted and became the present law under which mines are operated in this State. It is a pleasure to be able

to say that State inspection instead of being detrimental, or an embarrassment, in operating, has become a positive benefit in that it has kept the management in close touch with underground conditions through the State Inspector and has assisted those in direct charge by association with an outside point of view. Perhaps part of the success has been largely due to the ability, tact and helpfulness of the mine inspector, who has converted prejudice and suspicion into hearty cooperation.

Next in importance to the mine inspection is the Compulsory Compensation Act. The first legislature found itself in the extremely embarrassing position of having to frame a measure of compulsory compensation which, under the wording of the Constitution, could only be optional. They doubtless did the best they could under the very difficult circumstances, but the result has been eminently unsatisfactory to all parties concerned. Any law which leaves the question of compensation for death, or injury, to the financial soundness of the individual employer is bound to be a hardship on the employe, as only responsible corporations are in a position to meet a heavy loss through an accident. The miner who goes out to do assessment work on one of the thousands of prospects, owned by parties of small means, meeting with an injury can obtain no relief. It is estimated that not more than forty per cent of the labor employed in the State would, under this defective law, be able to collect damages for injuries, or death.

I think it is a fair assumption that the great majority of the employers of labor today recognize the justness of the axiom that the industry should bear the burden of its hazards; but it is only fair that the financial degree of responsibility should be defined and understood by both parties. A law which binds one party and not the other is in its very essence unfair and intolerable and can only be a fertile source of misunderstanding and distrust.

Until the Constitution of the State has been amended, making it possible to introduce a system of State Insurance, such as that so successfully operating in

the State of Washington, or a compulsory compensation bill like those of New York or Massachusetts, the moneys which in the ordinary course of events would go to alleviating the suffering of the injured will serve to render the Ambulance Chaser prosperous and contented.

Perhaps the most pernicious law passed by the last legislature and especially aimed at the mining industry was the so-called Eight-Hour Law, which provides that an employe shall not remain underground for a longer period than eight hours in any twenty-four. This, in the experience of the large mines of the State, means that deducting the necessary time to get to and return from the working place and half an hour for lunch the miner only averages seven hours work. It is inconceivable that the framers of this measure could have believed that it would inure to the benefit of the best interests of labor. It is of that class of legislation which endeavors to throttle ambition and efficiency, to make all men of the same degree of mediocrity and to prevent ability and industry asserting itself. In the past, and before the passage of this law, the miner or mechanic of ambition was glad to get a few hours extra work as overtime each week not only for the additional money there was in it, but in order to acquire experience in a class of labor which was impossible during hours of regular operation. The result of the passage of this law has been that the average wage of the employe has been curtailed and, what is more important, his opportunity for advancement has been materially reduced. As a commentary on legislation of this class directed at a single important industry it might be proper to mention that of the fifty-four members of the first legislature but seven of them could be by the most liberal construction classed as representatives of mining or had any practical knowledge of the industry.

It would be improper in this brief review of recent legislation as applying to the mining industry to dwell at length on the law enacted by the first State Legislature for The Taxation of Mines, as

this subject will be fully discussed at the meetings of the Congress.

In conclusion, therefore, it is a fair assumption, which is borne out by actual experience, that ill-digested legislation such as that above cited has not been of financial or moral benefit to the wage earner but has served to embarrass an industry on the material prosperity of which this State to a large extent depends. Emphasizing this, the contrast between the carefully considered "Mine Inspection Law" and the hastily framed and illogical Compulsory Compensation and Eight-Hour Laws is striking. A prolonged period of great depression faces the copper producers and only mutual cooperation and wisely considered measures can succeed in preventing great suffering in the mining communities through further restriction in the copper output.

MANGANESE ORES

Although the United States is the world's leading steel producer, this country's production of manganese ore, which is used in the production, is less than the amount imported.

The spiegeleisen and ferro-manganese made from domestic ore last year was 110,000 tons, 120,000 tons being made from imported ores. Of the total of 230,000 tons, 110,000 represented spiegeleisen, and 120,000 tons ferro-manganese. For her production of these alloys we are therefore largely dependent on imported ore. The sources of supply last year were as follows:

	Tons.
British India	141,587
Russia	124,337
Brazil	70,200
Germany	2,014
France	1,114

Our production of high-grade manganese ore is mainly from Virginia. A low-grade manganiferous iron ore is mined in the Lake Superior region, but that scarcely comes into consideration in the question of ferro-manganese production, as is also the case with the manganiferous iron ores of Arkansas and

Virginia, which are chiefly used in the manufacture of high-manganese pig-iron.

COLORADO COMMITTEE AT WORK

The Legislative Committee of the Colorado Chapter of the American Mining Congress, in cooperation with the Legislative Committee of the Colorado Metal Mining Association has been at work on several measures to go before Colorado's law-making body. The two committees have agreed on mechanics' lien and new taxation measures. They are also framing a workmen's compensation bill.

The members of the Colorado Metal Mining Association committee are: John Ewing, D. W. Strickland, Harry Robinson, Jacob Filius, State Senator Curran and Warren Page. The personnel of the committee of the Colorado Chapter of the American Mining Congress is: Geo. E. Collins, D. L. Webb and Samuel D. Nicholson. W. G. Swart, president of the Colorado Chapter, has been cooperating with the joint committee.

A COURSE FOR PROSPECTORS

The Colorado School of Mines at Golden has added to its curriculum a three weeks' course for prospectors, the course to begin February 8. The work will include lectures and laboratory studies, simple methods for the detection of minerals in the field and consideration of geological formation. The course is open to prospectors and all others interested in learning more concerning mineral areas. There will be no fees other than a nominal charge to cover cost of supplies and materials used, which cost is expected not to exceed \$3.

A short course in coal mining organized for the benefit of coal mine employees will begin April 1 and end April 29. The course will be practically the same as that of last year, and will include mining, chemistry, mathematics, mechanics, geology and drawing. This course will be free also, except for the cost of materials used, and textbooks, all of which are not expected to exceed \$5.

to say that State inspection instead of being detrimental, or an embarrassment, in operating, has become a positive benefit in that it has kept the management in close touch with underground conditions through the State Inspector and has assisted those in direct charge by association with an outside point of view. Perhaps part of the success has been largely due to the ability, tact and helpfulness of the mine inspector, who has converted prejudice and suspicion into hearty cooperation.

Next in importance to the mine inspection is the Compulsory Compensation Act. The first legislature found itself in the extremely embarrassing position of having to frame a measure of compulsory compensation which, under the wording of the Constitution, could only be optional. They doubtless did the best they could under the very difficult circumstances, but the result has been eminently unsatisfactory to all parties concerned. Any law which leaves the question of compensation for death, or injury, to the financial soundness of the individual employer is bound to be a hardship on the employe, as only responsible corporations are in a position to meet a heavy loss through an accident. The miner who goes out to do assessment work on one of the thousands of prospects, owned by parties of small means, meeting with an injury can obtain no relief. It is estimated that not more than forty per cent of the labor employed in the State would, under this defective law, be able to collect damages for injuries, or death.

I think it is a fair assumption that the great majority of the employers of labor today recognize the justness of the axiom that the industry should bear the burden of its hazards; but it is only fair that the financial degree of responsibility should be defined and understood by both parties. A law which binds one party and not the other is in its very essence unfair and intolerable and can only be a fertile source of misunderstanding and distrust.

Until the Constitution of the State has been amended, making it possible to introduce a system of State Insurance, such as that so successfully operating in

the State of Washington, or a compulsory compensation bill like those of New York or Massachusetts, the moneys which in the ordinary course of events would go to alleviating the suffering of the injured will serve to render the Ambulance Chaser prosperous and contented.

Perhaps the most pernicious law passed by the last legislature and especially aimed at the mining industry was the so-called Eight-Hour Law, which provides that an employe shall not remain underground for a longer period than eight hours in any twenty-four. This, in the experience of the large mines of the State, means that deducting the necessary time to get to and return from the working place and half an hour for lunch the miner only averages seven hours work. It is inconceivable that the framers of this measure could have believed that it would inure to the benefit of the best interests of labor. It is of that class of legislation which endeavors to throttle ambition and efficiency, to make all men of the same degree of mediocrity and to prevent ability and industry asserting itself. In the past, and before the passage of this law, the miner or mechanic of ambition was glad to get a few hours extra work as overtime each week not only for the additional money there was in it, but in order to acquire experience in a class of labor which was impossible during hours of regular operation. The result of the passage of this law has been that the average wage of the employe has been curtailed and, what is more important, his opportunity for advancement has been materially reduced. As a commentary on legislation of this class directed at a single important industry it might be proper to mention that of the fifty-four members of the first legislature but seven of them could be by the most liberal construction classed as representatives of mining or had any practical knowledge of the industry.

It would be improper in this brief review of recent legislation as applying to the mining industry to dwell at length on the law enacted by the first State Legislature for The Taxation of Mines, as

this subject will be fully discussed at the meetings of the Congress.

In conclusion, therefore, it is a fair assumption, which is borne out by actual experience, that ill-digested legislation such as that above cited has not been of financial or moral benefit to the wage earner but has served to embarrass an industry on the material prosperity of which this State to a large extent depends. Emphasizing this, the contrast between the carefully considered "Mine Inspection Law" and the hastily framed and illogical Compulsory Compensation and Eight-Hour Laws is striking. A prolonged period of great depression faces the copper producers and only mutual cooperation and wisely considered measures can succeed in preventing great suffering in the mining communities through further restriction in the copper output.

MANGANESE ORES

Although the United States is the world's leading steel producer, this country's production of manganese ore, which is used in the production, is less than the amount imported.

The spiegeleisen and ferro-manganese made from domestic ore last year was 110,000 tons, 120,000 tons being made from imported ores. Of the total of 230,000 tons, 110,000 represented spiegeleisen, and 120,000 tons ferro-manganese. For her production of these alloys we are therefore largely dependent on imported ore. The sources of supply last year were as follows:

	Tons.
British India	141,587
Russia	124,337
Brazil	70,200
Germany	2,014
France	1,114

Our production of high-grade manganese ore is mainly from Virginia. A low-grade manganiferous iron ore is mined in the Lake Superior region, but that scarcely comes into consideration in the question of ferro-manganese production, as is also the case with the manganiferous iron ores of Arkansas and

Virginia, which are chiefly used in the manufacture of high-manganese pig-iron.

COLORADO COMMITTEE AT WORK

The Legislative Committee of the Colorado Chapter of the American Mining Congress, in cooperation with the Legislative Committee of the Colorado Metal Mining Association has been at work on several measures to go before Colorado's law-making body. The two committees have agreed on mechanics' lien and new taxation measures. They are also framing a workmen's compensation bill.

The members of the Colorado Metal Mining Association committee are: John Ewing, D. W. Strickland, Harry Robinson, Jacob Filius, State Senator Curran and Warren Page. The personnel of the committee of the Colorado Chapter of the American Mining Congress is: Geo. E. Collins, D. L. Webb and Samuel D. Nicholson. W. G. Swart, president of the Colorado Chapter, has been co-operating with the joint committee.

A COURSE FOR PROSPECTORS

The Colorado School of Mines at Golden has added to its curriculum a three weeks' course for prospectors, the course to begin February 8. The work will include lectures and laboratory studies, simple methods for the detection of minerals in the field and consideration of geological formation. The course is open to prospectors and all others interested in learning more concerning mineral areas. There will be no fees other than a nominal charge to cover cost of supplies and materials used, which cost is expected not to exceed \$3.

A short course in coal mining organized for the benefit of coal mine employees will begin April 1 and end April 29. The course will be practically the same as that of last year, and will include mining, chemistry, mathematics, mechanics, geology and drawing. This course will be free also, except for the cost of materials used, and textbooks, all of which are not expected to exceed \$5.

THE FIRST MOVE

By W. G. SWART, DENVER, COLO.

Excerpts from Address Delivered Before the Seventeenth Annual Convention of the American Mining Congress, Phoenix, Arizona, Dec. 7-11, 1914.

We have recently been hearing that something is wrong with the mining industry; that the mineral output does not keep pace with the demand; that the good mines are rapidly being worked out; that prospecting is a "lost art;" that engineers will not recommend prospects; that money for development is not to be had, and that only developed properties can be marketed.

I am not going to say these assertions are wholly false, because the statement which opens this discussion is true—there does seem to be something wrong with the mining industry—but I do not believe the other statements will bear the light of careful investigation. The mineral output does keep pace with the demand. Metal prices and statistics prove it directly, beyond question, except in the case of gold, and since the price of gold must be measured indirectly we can only say that it seems also to be true of gold. It certainly is not true that all the good mines are worked out, neither is it true that prospecting is a "lost art," that engineers will not recommend prospects, that development money cannot be had, nor that only developed properties can be marketed. Any or all of these things may be true in individual cases, but in the aggregate the situation seems better than ever before. We are simply facing changed conditions and the old order is passing.

Mining must undoubtedly depend ultimately on prospecting, and like every other activity prospecting has had to change its methods. The man Arizona knows as the "desert rat" with his little grubstake and his burro was in his day the efficient prospector, but his burro cannot now compete with the automobile nor can he himself compete with the younger and more energetic men who drive the machines. They are the real modern prospectors, and if you will stop

a moment and consider you will be forced to admit both the increasing number of such men, and their influence on results. Some of these men are trained engineers, but many are not, and the statement that engineers will not recommend prospects almost answers itself—it makes little difference, so long as a body of active and intelligent young men is constantly discovering prospects and turning prospects into mines. It is also plain enough that someone is furnishing the money for this work. This leaves partially open only the statement that none but developed properties can be sold. Arizona again furnishes an answer. It is not necessary to go beyond her borders to show that some of the largest and best properties in the world have been bought, developed, equipped and put into operation within the past ten years. Does anyone question the willingness of the men who did this to repeat their success, or the willingness of others to emulate them?

The real point to be noted and emphasized here is that these are the large things, the spectacular things, the unusual things, the things requiring enormous capital. They are not the things requiring discussion here. We may take it as a firmly established fact that the really big things will continue to be handled by the really big men with their big resources. But the prosperity and stability of the mining industry depends, in the last analysis, just as much on the smaller enterprises, and it is with these that most of the complaints seem to originate. Is there a chance for the smaller mining operation? Can it be made attractive, secure and profitable?

Let us consider for a moment the distinction between prospecting and developing. There seems to be a very general impression that the lucky prospector finds a mine ready made. What he usually

finds is a "Prospect," which is simply the surface indication of possible ore beneath. It generally takes both time and money in liberal amount to ascertain even its chance of possible value, and this is called developing. Developing is the department of mining where the greatest risks must be taken, and where, incidentally, the greatest rewards may be expected. It is distinct from prospecting, and is even more important but the distinction is not well understood by the public at large. Mining is much more apt to suffer from lack of development than from lack of prospecting. Development funds come from a variety of sources, not necessary to enumerate here. They may, however, be separated into two general kinds—pure speculation and distributed risk. Unquestionably the larger part of development money has gone into the ground as pure speculation whether its owners knew it or not, and like most other speculations the proportion of losses have been exceedingly high. The distributed risk money has done far better but has not been so widely applied to smaller operations.

We all know that mining is made a solid, substantial and profitable business by the larger organizations. The very best talent is employed and the utmost care used in the selection and management of property. As many selected risks are assumed as can be obtained on suitable terms up to the financial limit of the organization. This is the distributed risk plan at its best, and few such concerns have ever failed from legitimate causes.

For a number of years the feeling has been growing among men qualified to judge that similar methods might be applied to smaller operations. The idea of local mining or exploration syndicates is not new—they have operated for years with a fair percentage of success. A syndicate of Colorado lawyers under good technical advice took several million dollars out of Creede and Cripple Creek. A syndicate of school teachers in another state paying into a working fund from five to twenty dollars a month each, made over two hundred thousand dollars in five years. It is easy to multiply such illustrations but we should also not for-

get that there have been many failures—far too many—arising both from general and local causes. It will occur to your minds immediately that the success of one such organization in a community ought to cause others to spring up with similar aims and hopes. It does; but the possibilities are usually seen and grasped first by the irresponsible promoter, and in the excitement of the public mind the real merit of the plan and the real reasons for its success are lost sight of with much unnecessary loss.

I believe the first move is a very definite move which must be systematically made in each community by those best qualified to make it, and they are the trained mining engineers and operators. I do not mean necessarily the graduates of mining schools, but just what is said—the trained mining men. They must do what they have not consistently done in the past—take the initiative and assume the leadership that is properly theirs. They must direct mining investment instead of only advise concerning it.

The one necessary thing is to guide and systematize local activity and it can be done properly only by the trained men. They must first show confidence in themselves, then build up the confidence of the community in their ability, integrity and unselfishness, and the rest is easy.

ALASKA'S MINERAL OUTPUT

Alaska's total mineral output for 1914 is estimated by Dr. Alfred H. Brooks, of the United States Geological Survey, at \$19,248,000 as compared with \$19,416,000 for 1913. The slight falling off in the figures for 1914 is due practically to the lower prices for copper. But for this fact the last year would have shown increased returns instead of a decrease.

During the thirty-four years of mining in Alaska—since 1880—according to the figures of Dr. Brooks, the territory has yielded mineral wealth valued at \$268,000,000. Of this \$244,300,000 has been in gold, \$19,800,000 in copper, \$2,251,000 in silver and \$373,000 in coal. Other mineral products include tin, lead, quick-silver. Petroleum, marble and gypsum figure in the returns.

THE PROPER ADVERTISING OF MINING OPPORTUNITIES

BY DR. JAMES E. TALMAGE, SALT LAKE CITY.

Excerpts from Address Delivered Before the Seventeenth Annual Session of the American Mining Congress, Phoenix, Arizona, December 9, 1914.

We live in an advertising age, and mining, like every other systematized activity, is concerned in the modern art and practice of public exploitation. It is of record that the earliest printed periodical, devoted to the dissemination of news, was issued in the year 1622; but not until another quarter of a century had sped its way, that is to say in 1647, did the first newspaper advertisement appear.

Well developed, productive, and paying mines are not advertised as a rule, by any of the methods specified. There is a very natural tendency to keep a really good thing in mining properties among the few who were fortunate enough to acquire holdings while the stock was cheap; and who have had the ability and good sense to retain the same. Prospects of undemonstrated and uncertain value are made subjects for widespread advertisements, usually, as stated, by the circularizing method, and many are they who are caught thereby, more frequently to their sorrow than joy.

The real prospector, he of the pick, shovel and pack-mule, is no party to the advertising scheme; when the mails begin to be burdened with printed matter respecting his find, it is a sure indication that the property has ceased to be his, and has passed into the possession of an entirely different species of prospector, who probably could with difficulty distinguish the pick from the shovel or the burro from its pack; and whose place of work is not the hole in the ground but the well furnished office; whose chief assistant is no hardy miner but a pretty stenographer; and whose pay-streak is the inherent weakness of human nature.

The element of chance, which enters so largely into all mining operations, the ever alluring possibility of a "get-rich-

quick" opportunity, lead many to seize the glittering bait offered through the circular advertisement, though they have not experience, knowledge, or judgment enough to see whether the bait is flesh, fish, or fowl, or only a glittering spoon-bait with the hooks in plain sight.

The safe and reasonable way is to regard every circularized mining proposition with caution if not with suspicion. The standing of reliable companies is or should be set forth in the official reports of the president and directors; and the would-be investor, if prudent, may ascertain from such reports and by personal inquiry the merits of the mine.

If mining properties are to be advertised at all, public sentiment and if necessary legislation should be invoked to denounce and punish dishonest promoters who seek to entrap the unwary and unwise, by presenting possibilities as certainties. No one knows better than the really practical miner, the competent mining engineer, and the experienced mining geologist, how much there is about mining that we do not know; nor do any realize better than these that we *have* learned some things about mineral occurrences, and that we *can* speak with relative certainty on many matters relating to ore deposits and the reliable indications thereof. In any advertising of mining property the promoters ought to be compelled to state only the facts such as a skilled and trustworthy examiner would attest, and to make clear the risk involved in the enterprise.

It is true that many of the promised advantages associated with circularized mining properties are so plainly exaggerations and misrepresentations that the duped victims thereof are deserving of little sympathy. Admitting this without question we are still confronted by the facts that such glaring misrepresenta-

tions are essentially criminal, and that the mining profession and industry is the ultimate sufferer therefrom. The spirit of American law is unquestionably set against wilful deception and fraud, however great the ignorance and guilelessness of the thoughtless victims.

It is a practical certainty that much of the misrepresentation embodied in promoters' advertisements is chargeable, in part at least, to the optimistic reports made by incompetent or dishonest examiners, many of whom profess a standing among "mining experts" though lacking practical experience as miners and technical training as mining engineers or geologists. If advertisers be required, either through stress of public opinion or by legislative provision, to support their promises and claims by the authority of competent men who have examined and reported on the properties offered to the public, there should be a strong and effective proscription against untrained and unreliable men posing under the objectionable but nevertheless current designation "mining experts." One of the great drawbacks to real progress in intelligent prospecting, and in the legitimate inducement of capital to further the enterprise, is the unreliability of the professional examiners of mining properties whose reports are made the basis of unwarranted and exaggerated claims. We all know that the honorable, high, and useful profession of the mining engineer and the mining geologist is infested by many parasites who stand to the competent mining men as the proverbial quack stands to the worthy physician.

It is needless to affirm that every proper advertisement of an opportunity in mining should be fair and honest, which is but another way of saying, truthful. If the mining property to be advertised offers a real opportunity for advantageous development and subsequent productiveness, this truth should be so set forth with the supporting evidence afforded by the report of competent examiners; but to proclaim a certainty where only a possibility exists is not only to speak but to commit a pernicious falsehood.

The most effective safeguard against the continuation of dishonest methods in advertising mining opportunities is that of professional and public opposition thereto. I consider it strictly within the legitimate activities of this Congress to set its seal of disapproval on the pretensions of untrained and unqualified men in all departments of the mining business, and to demand in no uncertain tones integrity and uprightness on the part of all who seek to promote and to advertise properties and opportunities offering gain in mining. Public opinion, encouraged and supported by the influence of this great organization, will be stronger than legislative enactment however radical or drastic. I do not recommend as essential to reformation in the matter of mine promotion the creation of new laws, either state or national, but the strict enforcement of existing statutes, and the spirit of the common law, which may perhaps with allowable variation be called the "common sense law," of right doing. It is impossible to advertise extensively except through the use of the United States mail; and existing laws directed against the illegal use of the mails are sufficiently comprehensive if only enforced. In the process of extensively circularizing any mining property good or bad, some intelligent mining men would be reached through the mails. If they find in the literature sent to them the elements of fraud, misrepresentation, and deceit, it should be considered by each of them a duty to report the matter to the postal authorities and place in official hands the evidence of the offense. We have already on record a few cases of conviction and punishment for criminal misrepresentation of facts in connection with mining properties in which the charge of illegal use of the mails was proved. These examples have had a wholesome effect and a persistent following up of this aggressive course cannot fail in time to reduce the criminal practice to a minimum. In the interests of legitimate mining let us be united in determined and aggressive oppositions against all species of untruthful advertising.

1914 SILVER PRODUCTION

The domestic production of silver again reached a high mark in 1914. The preliminary estimates of the United States Geological Survey and the Bureau of the Mint indicate an output of 67,929,700 fine ounces, valued at \$37,225,000, but the final figures may be somewhat lower. This was again one of the greatest outputs since the domestic production of silver began, according to H. D. McCaskey, of the United States Geological Survey. In 1912, 1913 and 1914 the highest record outputs of quantity have been made, but, owing to the varying yearly average prices for the metal, the value of the output has frequently in the last twenty-five years exceeded the value of any one recent year.

Increases in mine production of silver were notable in Idaho, California, and Arizona in 1914, and large decreases were recorded in Montana, Utah, Nevada, and Colorado.

Nevada retained first place in output of silver in 1914, but early figures from the mines indicate a decrease in production of over 800,000 ounces. The Tonopah, Nevada Hills, Nevada Wonder, Rochester, and other mines were active producers.

Idaho ranked second in silver production in 1914, with an increase in production of about 3,000,000 ounces, making a record for the State. The great lead-silver mines of the Cœur d'Alenes had a particularly productive year.

In Montana the silver output fell off more than 1,500,000 ounces, owing chiefly to the curtailed copper yield resulting mainly from the European war but also in part from labor conditions at Butte.

Utah ranked fourth in output, but the yield declined. The bulk of the silver produced was derived from silver-bearing lead ores of the Tintic district, but Park City, Bingham, and other districts contributed. The yield from copper ores of the smaller mines decreased with the curtailment of the copper yield.

Colorado ranked fifth in silver production, with a decrease of over 400,000

ounces, and Arizona ranked sixth, with an increase of about the same quantity, and a record output.

Low metal prices and disorganized markets in the later part of 1914 especially, and curtailment of copper output owing to the European war, made the year a difficult one for producers of silver. But for the increased yield of siliceous silver ores at Tonopah and in Arizona and the silver-lead-zinc ores especially at Butte and in the Cœur d'Alenes, the silver yield would have been greatly decreased; and but for the European war the domestic silver output would have broken all records in quantity of output, at least.

Demand for silver from India and China was disappointingly light in 1914, and London stocks accumulated resulting in a poor market. New York prices, reflecting these conditions, were generally low, especially in the later half of the year. For fine bar silver the price averaged 57.6 cents in January, 57.5 in February, 58 in March, 58.5 in April, and 58.1 in May. In June it dropped to 56.5, in July 54.7, in August to 54.3, in September to 53.3, in October to 50.7, and in November to 49.1. The average for December was about 49.4 cents and therefore the general average for the year was only about 54.8 cents, or the lowest since 1911.

The imports of silver in 1914 were valued at \$25,331,000, as estimated from the records of the Bureau of Domestic and Foreign Commerce. The exports were valued at \$50,500,000, or \$25,169,000 in excess of the imports. In 1913 the excess of exports over imports was \$26,908,812.

The imports of silver in 1914 were, as usual, chiefly in ore and bullion and mainly from Mexico, which supplied \$14,186,000 in silver, and Canada, which supplied \$5,637,000.

The total gold production for 1913 in the Philippine Islands was \$868,362, much the highest annual figures yet recorded. Practically all of it was exported.

GOLD PRODUCTION IN 1914

The gold mining industry of the United States had a prosperous year in 1914 and regained its normal condition, inasmuch as early returns indicate an output greater by nearly \$4,000,000 than that of 1913. Mr. H. D. McCaskey, of the United States Geological Survey, who is authority for these figures, adds that the production in 1913 was lower than for several years past and even in 1914 the output was considerably below that of any year in the period 1908-1912, when the high-water mark was reached. For 1914 the preliminary figures of the United States Geological Survey and the Bureau of the Mint indicate a total gold yield of \$92,823,500.

In Alaska the output of gold increased about \$300,000, the industry was generally prosperous, and a large amount of dead work continued to be done preparatory to increased output from lode mines. The placer yield was about \$10,700,000, or the same as in 1913, and increases made in the Ruby, Seward Peninsula, Iditarod, and Hot Springs districts offset declines in output from Fairbanks and other camps. Abundant rainfall favored placer mining. About twenty-six gold-lode mines produced about \$5,100,000 in 1914, against \$4,814,813 from thirty mines in 1913. Juneau, including the Treadwell and the great new Alaska-Juneau, Alaska-Gastineau, and other mines, continued to be the most important lode district.

In Arizona the mine production of gold increased about \$500,000 in 1914. The chief producers, the Tom Reed, Gold Road, Vulture and Commonwealth mines, were active and produced more than half the total yield, the remainder coming largely from copper ores.

In California the mines produced over \$700,000 more than in 1913. The Grass Valley, Mother Lode, and other quartz mines continued active producers at depth, and the placer output especially from the large dredging operations, was again large. The dredges alone produced forty per cent of the total gold

yield and over ninety per cent of the total placer output.

Colorado mines increased their yield by over \$1,500,000 above that of 1913, the greater part of this increase, or \$1,143,000, being made in the Cripple Creek district, where the mines and mills had another active year. Lake County (chiefly Leadville) made an important increase in gold output also, and smaller increases were made in Ouray and Dolores Counties of the San Juan region, and in Boulder, Chaffee, Clear Creek, Summit and Eagle Counties. The gold yield declined somewhat in San Juan, San Miguel and La Plata Counties, of the San Juan region and in Mineral County (Creede).

In Idaho the mine output decreased over \$250,000, owing largely to the small output of the De Lamar mine, but the dredges in Lemhi and Boise Counties had a prosperous year.

In Montana the mine yield increased over fourteen per cent and the total production was about \$4,000,000, or more than for any year since 1906. The placers and the Southern Cross and North Moccasin mines enjoyed an active year.

Nevada mines showed a decrease of about four per cent, or over \$100,000, in gold output in 1914. The yield at the great Goldfield camp alone declined by over \$1,000,000, but this decrease was offset by increased yield from Tonopah, Fairview, Wonder, Round Mountain, National, Seven Troughs, and other camps. At Manhattan the output declined about forty per cent.

In New Mexico the mine production increased nearly \$300,000, but in Oregon the output declined about \$20,000.

In South Dakota the mine output was normal. The great Homestake mines and mills were operated through the year, treating a slightly increased tonnage of slightly lower grade. The Golden Reward, Mogul, Trojan, Reliance, Wasp No. 2, and other mines and mills were generally active.

In Utah the mine output of gold decreased about seven per cent, or over \$250,000, in 1914. The yield was principally from copper ores. The output from true gold ores has declined since the suspension of operations at Mercur. The Philippine production had steadily increased and in 1914 passed the \$1,000,000 mark.

California again retains first rank in gold production in 1914, followed in order by Colorado, Alaska, Nevada and South Dakota, as in 1913. Arizona and Montana have both passed Utah, however, which dropped to eighth place in 1914. As stated in the Geological Survey Press Bulletin one year ago, increased output of gold on any large scale is hardly to be expected from any of the states from the present outlook, and unless the great low-grade deposits of the Juneau district, in Alaska, now being prepared for large yield, step into the breach or new discoveries are made elsewhere, the future domestic gold yield may show further decline from the high figures of recent years. Undoubtedly discoveries will be made, for much territory remains for the patient examination or reexamination by the indefatigable prospector, but the importance of such discoveries is necessarily beyond prophecy.

According to estimates from the records of the Bureau of Foreign and Domestic Commerce, the imports in 1914 comprised gold valued at \$58,122,000 and the exports were valued at \$242,711,000. The excess of exports over imports was therefore about \$184,589,000, against an excess of \$28,093,778 in 1913. The gold imported in 1914 was, as usual, in ore, bullion and coin; \$35,759,000 came from Canada and the remainder chiefly from Japan, Mexico and Central and South America. The exports, which were of especial interest in 1914, were about \$113,513,000 to Canada, \$92,323,000 to France, and \$31,116,000 to England, and were mainly in United States coin and fine bars.

The output of the Rand mines for 1914 shows a falling off of 416,686 fine

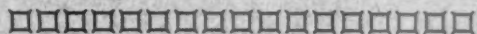
ounces from the total production for 1913. The output for 1913 in fine ounces was 8,794,824 and that for 1914, 8,378,138. The showing for the last half of 1914 is the best, there being a considerable increase over the corresponding months of the preceding year.

FEDERAL ACCIDENT COMPENSATION

The U. S. Government during the past five years has paid \$1,803,923 to 14,046 of its employes on account of accidents met with in service. The money has been disbursed to the injured under the Federal Compensation Act of 1908. The act embraces approximately 95,000 persons, somewhat less than one-fourth of the civilian employes of the general government and carries artisans and laborers in manufacturing plants, arsenals, navy yards, river harbors and fortification work and all employes under the Isthmian Canal Commission, the Bureau of Mines, the Light House service and the Forestry service.

The total number of accidents reported was 42,290. Of this number 1,006 were fatal, about 10 per cent of which were in occupations not subject to compensation. Nearly one-half of the accidents and of the compensation paid refer to employes of the Panama Canal, who worked under conditions involving a high degree of hazard. The Navy Department ranked second in the amount of costs for compensation, the War Department third and the Interior Department fourth.

The rates on coal shipped to St. Louis from the Illinois bituminous field are the subject of a complaint filed with the Interstate Commerce Commission by the St. Louis Coal Operators' Traffic Bureau. One complaint is directed against the Baltimore and Ohio Railroad, and the charge is made that the tariff on coal shipped in small cars is higher than that on coal shipped in large cars. Complaint also has been filed against most of the railroads in the Illinois mining belt.

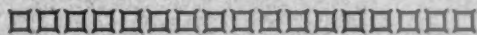


Profitable Co-operation

The manufacturers of and dealers in mining machinery and supplies are interested with the mine operators in the prosperity of the mining industry.

All have a mutual interest and each can serve himself by serving the others.

All are interested in the efforts of the American Mining Congress to better conditions. You help the Mining Congress. The Mining Congress helps the operators and the operators help you—profitable co-operation.



The mining industry furnishes

The iron which makes our machinery,

The coal which furnishes our power,

The gold which measures our values,

The copper which transmits our
thought and

The chemical forces which are revolu-
tionizing our industries.

It deals with the essentials of modern
development.

Its products, when once exhausted,
can never be reproduced.

It is the one indispensable industry.

Through co-operation only can its
importance

Command recognition and the best
results be accomplished.

